

**CITY OF AUSTIN
AUSTIN ENERGY
721 BARTON SPRINGS ROAD, AUSTIN, TEXAS 78704
DISTRICT COOLING PLANT II**



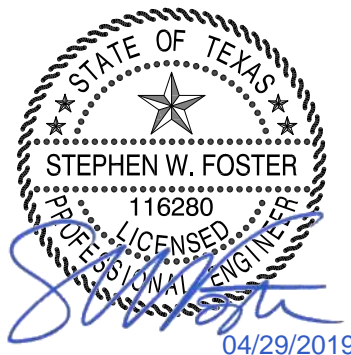
410 Sabine Street
Austin, Texas

EXTERIOR TILE REPAIR REBID

PROJECT MANUAL

CONTRACT DOCUMENTS AND TECHNICAL SPECIFICATIONS
INVITATION FOR BIDS: IFB 6100 CLMC725A

April 29, 2019



**WISS, JANNEY, ELSTNER ASSOCIATES, INC.
9511 North Lake Creek Parkway
Austin, Texas 78717**

Texas Registered Engineering Firm F-0093

WJE No. 2016.2948

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INVITATION FOR BIDS

Section 00020

1. OVERVIEW AND PROJECT INFORMATION

Following is a summary of information for this Project. Bidder is cautioned to refer to other sections of the Project Manual, Drawings and Addenda (Bid Documents) for further details.

The City of Austin, hereafter called OWNER, is requesting sealed written Bids for furnishing all labor, materials, equipment, supervision, and incidentals, and for performing all Work required for the following:

Project:	DCP II - Exterior Tile Repair Rebid
Located at:	410 Sabine Street, Austin, Texas
Solicitation No.:	CLMC 725A

The Work consists of removal and replacement of glass tile cladding, including control joints and weatherproofing; concrete wall repairs/build-out; and removal and replacement of concrete sidewalks.

2. BID DOCUMENTS

Bid Documents are obtained through the City's Vendor Connection website, log on www.austintexas.gov/financeonline/vendor_connection/index.cfm. A complete set of Bid Documents, including all sections of the Project Manual and Drawings, are included in the attachments section of each solicitation.

All addenda and answers to Bidders' questions will also be posted in the attachments section for each solicitation on the City's Vendor Connection website.

3. SUBMISSION OF BIDS

Sealed Bids will be received at the Capital Contracting Office, One Texas Center, 505 Barton Springs Rd., Suite 1045-C, Austin, Texas 78704, and then publicly opened and read aloud in the **SUITE 1045-C, Congress Conference Room**.

ALL BIDS ARE DUE PRIOR TO (Austin time) 10:00 AM, May 23, 2019.

ALL COMPLIANCE PLANS ARE DUE PRIOR TO (Austin time) 2:00 PM, May 23, 2019.

BIDS WILL BE OPENED AT (Austin time) 2:00 PM, May 23, 2019.

ALL BIDS AND COMPLIANCE PLANS NOT RECEIVED PRIOR TO THE DATE AND TIME SET FORTH ABOVE WILL NOT BE ACCEPTED FOR CONSIDERATION. The time stamp clock in **SUITE 1045-C** is the time of record and is verified with www.time.gov, the official U.S. time.

4. VENDOR REGISTRATION AND NON-DISCRIMINATION

All CONTRACTORS must be registered to do business with OWNER prior to the Contract Award. All Subcontractors must be registered with the OWNER prior to execution of a contract. Prime Contractors are responsible for ensuring that their Subcontractors are registered as vendors with the City of Austin. Registration can be done through the OWNER's on-line Vendor Registration system. Log onto and follow directions: <https://www.ci.austin.tx.us/vss/Advantage>.

The City of Austin, in accordance with the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat. 252, 42 U.S.C. §§ 2000d to 2000d-4) and the Regulations, hereby notifies all bidders that it will affirmatively ensure that any contract entered into pursuant to this advertisement, disadvantaged business enterprises will be afforded full and fair opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, or national origin in consideration for an award.

5. MBE/WBE PROCUREMENT PROGRAM

All City procurements are subject to the City's Minority-Owned and Women-Owned Business Enterprise Procurement Program found at Chapter 2-9-A of the City Code, as amended. The Program provides Minority-Owned and Women-Owned Business Enterprises (MBEs/WBEs) or Disadvantaged Business Enterprises (DBEs) full opportunity to participate in all City contracts. Goals for MBE/WBE or DBE participation are stated for each solicitation. Information on achieving the goals or documenting good faith efforts to achieve the goals are contained in the MBE/WBE Procurement Program Package or DBE Procurement Program Package attached to the solicitation. When goals are established, Bidders are required to complete and return the MBE/WBE or DBE Compliance Plan with their Bid. If a Compliance Plan is not submitted prior to the date and time set forth in the solicitation, the Bid will not be accepted for consideration. (See Section 00820 for MBE/WBE requirements on "no goal" solicitations.)

6. BID GUARANTY

All Bids shall be accompanied by an acceptable Bid guaranty in an amount of not less than five percent (5%) of the total Bid, as specified in Section 00100, Instructions to Bidders.

7. BONDS AND INSURANCE

Performance and payment bonds when required shall be executed on forms furnished by OWNER. Each bond shall be issued in an amount of one hundred percent (100%) of the Contract Amount by a solvent corporate surety company authorized to do business in the State of Texas, and shall meet any other requirements established by law or by OWNER pursuant to applicable law.

Minimum insurance requirements are specified in Section 00810, Supplemental General Conditions.

8. WAGE COMPLIANCE

Minimum wage rates have been established and are specified in Section 00830, Wage Rates and Payroll Reporting.

9. CONTRACT TIME

Contract Time is of the essence and all Work shall be substantially completed within One Hundred (100) Calendar Days after date specified in the Notice to Proceed, in accordance with the Bid Form, Section 00300.

Final completion shall be achieved within thirty (30) Calendar Days after substantial completion.

Liquidated damages are three hundred twenty dollars (\$320) per Calendar Day for failure to substantially complete the work and one hundred ten dollars (\$110) per Calendar Day for

failure to achieve final completion within thirty (30) Calendar Days after substantial completion, in accordance with the Bid Form, Section 00300L.

10. OWNER'S RIGHTS

OWNER reserves the right to reject any or all Bids and to waive any minor informality in any Bid or solicitation procedure (a minor informality is one that does not affect the competitiveness of the Bid).

11. PRE-BID CONFERENCE

A **non-mandatory** Pre-Bid Conference and site visit will be held on May 8, 2019 at 10:30 AM (Austin time), 410 Sabine Street, Austin, Texas 78701.

Attendance is non-mandatory unless otherwise stated. Bidders are encouraged to attend any non-mandatory Pre-Bid Conference to ensure their understanding of OWNER's bidding and contracting requirements, particularly MBE/WBE or DBE Procurement Program requirements.

12. ANTI-LOBBYING AND PROCUREMENT

On June 14, 2018, the Austin City Council adopted Ordinance No. 20180614-056 replacing Chapter 2.7, Article 6 of the City Code relating to Anti-Lobbying and Procurement. The policy defined in this Code applies to Solicitations for goods and/or services requiring City Council approval under City Charter Article VII, Section 15 (Purchase Procedures). The City requires Offerors submitting Offers on this Solicitation to certify that the Offeror has not in any way directly or indirectly had communication restricted in the ordinance section 2-7-104 during the No-Lobbying Period as defined in the Ordinance. The text of the City Ordinance is posted on the Internet at:

https://assets.austintexas.gov/purchase/downloads/New_ALO_Ordinance_No_20180614-056.pdf

13. AUTHORIZED CONTACT PERSONS

The persons listed below may be contacted for information regarding the Invitation for Bid.

PROJECT MANAGER: Bhasker C. Reddi, phone 512-972-9546,
email Bhasker.Reddi@austinenergy.com

CAPITAL CONTRACTING OFFICE CONTACT: Steven Cocke, 512-974-7998,
email: Steven.Cocke@austintexas.gov

SMALL & MINORITY BUSINESS RESOURCES DEPARTMENT CONTACT: Keisha Houston-McCutchin, 512-974-7738, email: Keisha.Houston@austintexas.gov

END

INSTRUCTIONS TO BIDDERS

Section 00100

1. PREPARATION OF BID

1.1 Bid Documents. Each Bidder must prepare its Bid in ink on forms furnished by OWNER or as otherwise specified or permitted. Blank spaces for each item in Bid form must be filled. Bidder must submit a price for each item in Bid. In case of conflict between unit prices and extensions, unit prices shall govern. The Bid must be executed in the complete and correct legal name of individual, partnership, firm, corporation or other legal entity constituting the Bidder.

1.2 Vendor Registration. All CONTRACTORS must be registered to do business with OWNER prior to Contract Award. All Subcontractors must be registered with the OWNER prior to execution of a contract. Prime Contractors are responsible for ensuring that their Subcontractors are registered as vendors with the City of Austin. Registration can be done through the OWNER's on-line Vendor Registration system. Log onto <https://www.ci.austin.tx.us/vss/Advantage> and follow the directions.

1.3 Pre-Bid Conference. Unless otherwise notified, Bidders must attend the Pre-Bid Conference to ensure their understanding of OWNER's bidding and contracting requirements, particularly MBE/WBE Procurement Program requirements.

1.4 Sales Tax Exemption. The Owner is a tax-exempt organization as defined by Chapter 11 of the Property Tax Code of Texas. Bid prices shall not include sales tax on materials, supplies, or equipment that are incorporated into the real property interest of the OWNER or are otherwise completely used and consumed in the performance of the Contract. OWNER will furnish CONTRACTOR with a Sales Tax Exemption Certificate to be issued to Suppliers in lieu of the tax.

1.5 Minimum Wages. Workers on Project shall be paid not less than wage rates, including fringe benefits, as published by the Department of Labor (DOL) for Building Construction and Heavy and Highway Trades "AS APPLICABLE" and/or the minimum wage required by City of Austin Ordinance No. 20160324-015, whichever is higher. The Total Minimum Wage required can be met using any combination of cash and non-cash qualified fringe benefits provided the cash component meets or exceeds the minimum wage required.

1.6 Addenda. Bidder shall be knowledgeable of all Addenda issued and shall acknowledge all Addenda in spaces provided on Bid form. Further information regarding the Bid documents and the Project may be obtained from the Project Manager listed at the end of Section 00020, Invitation for Bids.

1.7 Required Items. Bids must include all specified items in this section and be submitted in accordance with paragraph No. 7 below. Any additional requirement to the bid submittal is specified in Section 00820. Any corrections to a Bid shall be initialed by the person signing the Bid.

1.8 Professional Services. Bidders must secure any required professional services that are defined as professional services under the Professional Services Procurement Act, Chapter 2254 of the Texas Government Code (for example: registered professional land surveyors and professional engineers) using the qualifications based selection process prescribed by that chapter. (Note: It is a violation of State Law to solicit Bids for professional services.)

1.9 Further Information. Prospective Bidders desiring further information or interpretation of Project Manual or Drawings must make a written request for such information to OWNER addressed to the Authorized Contact Person listed in Section 00020 no later than seven (7) Working Days before Bid opening. Interpretation of Project Manual or Drawings will be made by Addendum only and obtained through the City's Vendor Connection website. Log on to: www.austintexas.gov/financeonline/vendor_connection/index.cfm. Any verbal communications will not be binding on the OWNER.

1.10 Anti-Lobbying and Procurement. Article 6, Chapter 2-7, City Code, repealed and replaced effective on June 25, 2018, prohibits lobbying activities or representations by Offerors during the No Lobbying Period as defined in the Ordinance.

1.10.1. FINDINGS; PURPOSE.

- (A) The council finds that persons who enter a competitive process for a city contract voluntarily agree to abide by the terms of the competitive process, including the provisions of this article.
- (B) The council finds that it is in the City's interest:
 - (i) to provide the most fair, equitable, and competitive process possible for selection among potential vendors in order to acquire the best and most competitive goods and services; and
 - (ii) to further compliance with State law procurement requirements.
- (C) The council intends that:
 - (i) each response is considered on the same basis as all others; and
 - (ii) respondents have equal access to information regarding a solicitation, and the same opportunity to present information regarding the solicitation for consideration by the City.

1.10.2. APPLICABILITY.

- (A) This article applies to all solicitations except:
 - (i) City social service funding;
 - (ii) City cultural arts funding;
 - (iii) federal, state or City block grant funding;
 - (iv) the sale or rental of real property;
 - (v) interlocal contracts or agreements; and
 - (vi) solicitations specifically exempted from this article by council.
- (B) Absent an affirmative determination by the council, the purchasing officer has the discretion to apply this article to any other competitive process.
- (C) City Code Section 1-1-99 (*Offenses; General Penalty*) does not apply to this article.

1.10.3. DEFINITIONS.

In this article:

- (A) AGENT means a person authorized by a respondent to act for or in place of the respondent in order to communicate on behalf of that respondent. Each of the following is presumed to be an agent:
 - (i) a current full-time or part-time employee, owner, director, officer, member, or manager of a respondent;
 - (ii) a person related within the first degree of consanguinity or affinity to a current fulltime or part-time employee, owner, director, officer, member, or manager of a respondent;

(iii) a person related within the first degree of consanguinity or affinity to the respondent, if a respondent is an individual person; and Section 0200 V2, Solicitation Instructions 4 Rev. 06-26-2018

(iv) a lobbyist, attorney, or other legal representative of the respondent that has been retained by the respondent with respect to the subject matter of either the solicitation or the respondent's response to the solicitation.

(B) AUTHORIZED CONTACT PERSON means a City employee designated in a City solicitation as the point of contact for all purposes for that solicitation.

(C) CITY EMPLOYEE is defined in Section 2-7-2 (*Definitions*), and further includes an independent contractor hired by the City with respect to the solicitation.

(D) CITY OFFICIAL is defined in Section 2-7-2 (*Definitions*).

(E) NO-LOBBYING PERIOD means the period of time beginning at the date and time a solicitation is published and continuing through the earliest of the following:

- (i) the date the last contract resulting from the solicitation is signed;
- (ii) 60 days following council authorization of the last contract resulting from the solicitation; or
- (iii) cancellation of the solicitation by the City

(F) PURCHASING OFFICER means the City employee authorized to carry out the purchasing and procurement functions and authority of the City.

(G) RESPONSE means a written offer or submission in reply to a solicitation.

(H) RESPONDENT means a person or entity that has timely submitted or subsequently timely submits a response to a City solicitation, even if that person subsequently withdraws its response or has been disqualified by the City for any reason. Respondent includes:

- (i) a subsidiary or parent of a respondent;
- (ii) a joint enterprise, joint venture, or partnership with an interest in a response and in which a respondent is a member or is otherwise involved, including any partner in such joint enterprise, joint venture, or partnership; and
- (iii) a subcontractor to a respondent in connection with that respondent's response.

(I) SOLICITATION means an opportunity to compete to conduct business with the City that requires council approval under City Charter Article VII Section 15 (*Purchase Procedure*), and includes, without limitation:

- (i) an invitation for bids;
- (ii) a request for proposals;
- (iii) a request for qualifications;
- (iv) a notice of funding availability; and
- (v) any other competitive solicitation process for which the purchasing officer, in the purchasing officer's sole discretion, affirmatively determines this article should apply in accordance with Section 2-B.

1.10.4. RESTRICTION ON LOBBYING.

Subject to the exclusions in Section 5 (*Permitted Communications*), during a no-lobbying period,

(A) a respondent or an agent shall not communicate directly with a City official or a City employee, or both in order to:

- (i) provide substantive information about any respondent or response with respect to the solicitation to which the communication relates;

- (ii) encourage the City to reject one or more of the responses to the solicitation to which the communication relates;
- (iii) convey a complaint about the solicitation to which the communication relates; or
- (iv) ask any City official or City employee to favor or oppose, recommend or not recommend, vote for or against, consider or not consider, or take action or refrain from taking action on any vote, decision, or agenda item regarding the solicitation to which the communication relates.

(B) a City official shall not contact or communicate with a respondent regarding a response or the solicitation to which the no-lobbying period applies;

(C) a City employee, other than the authorized contact person, shall not contact or communicate with a respondent regarding a response or the solicitation to which the no-lobbying period applies.

1.10.5. PERMITTED COMMUNICATIONS.

The following communications are permitted under this article at any time:

- (A) any communication between a respondent or agent and any authorized contact person, including, without limitation and in accordance with regulation, any complaint concerning the solicitation;
- (B) any communication between a respondent or agent and any person to the extent the communication relates solely to an existing contract between a respondent and the City, even when the scope, products, or services of the current contract are the same or similar to those contained in an active solicitation;
- (C) any communication between a respondent or an agent and a City employee to the extent the communication relates solely to a non-substantive, procedural matter related to a response or solicitation;
- (D) any communication required by or made during the course of a formal protest hearing related to a solicitation;
- (E) any communication between a respondent or an agent and the City's Small & Minority Business Resources Department, that solely relates to compliance with Chapters 2-9A through 2-9D (*Minority-Owned and Women-Owned Business Enterprise Procurement Program*) of the City Code;
- (F) any communication between an attorney representing a respondent and an attorney authorized to represent the City, to the extent the communication is permitted by the Texas Disciplinary Rules of Professional Conduct;
- (G) any communication made by a respondent or an agent to the applicable governing body during the course of a meeting properly noticed and held under Texas Government Code Chapter 551 (*Open Meetings Act*);
- (H) any communication between a respondent or an agent and a City employee whose official responsibility encompasses the setting of minimum insurance requirements for the solicitation to which the communication relates, to the extent the communication relates solely to the insurance requirements established by the City in the solicitation; and
- (I) any contribution or expenditure as defined in Chapter 2-2 (*Campaign Finance*).

1.10.6. MODIFICATION OF RESTRICTION.

The purchasing officer may waive, modify, or reduce the requirements in Section 4 (*Restrictions on Lobbying*) in order to allow respondents to communicate with a City employee or a City official other than the authorized

contact person when the purchasing officer determines, in writing, that the solicitation must be conducted in an expedited manner, including but not limited to a solicitation conducted for reasons of health or safety under the shortest schedule possible with no extensions. Any such modification authorized by the purchasing officer shall be stated in the solicitation.

1.10.7. NOTICE.

- (A) Each solicitation shall include a notice advising respondents and prospective respondents:
- (i) of the requirements of this article;
 - (ii) that any communication initiated by a City employee or City official, other than the authorized contact person, during the no-lobbying period regarding a response or the solicitation may result in a violation of Section 4(A) if the respondent subsequently lobbies that City employee or City official.
- (B) The purchasing officer, or a City employee designated by the purchasing officer, shall provide weekly written notice, accessible to all City employees and City officials, of each solicitation for which the no-lobbying period is in effect.

1.10.8. DISCLOSURE OF VIOLATION.

A City official or a City employee other than the authorized contact person that becomes aware of a violation of Section 4 (*Restrictions on Lobbying*) shall notify the authorized contact person in writing as soon as practicable.

1.10.9. ENFORCEMENT.

- (A) A respondent that has been disqualified pursuant to Section 10(A) (*Disqualification; Contract Voidable*) may appeal such disqualification to a subcommittee that is less than a quorum of the Ethics Review Commission established in Chapter 2-7, Article 2 (*Ethics Review Commission*), whose decision on appeal shall be final and binding. Any appeal must be filed in the manner prescribed by the Ethics Review Commission within 5 calendar days of the notice given by the purchasing officer pursuant to Section 10(B).
- (B) The purchasing officer shall waive a violation of Section 4(A) if the violation was solely the result of communications initiated by a City official or a City employee other than the authorized contact person.
- (C) The purchasing officer has the authority to enforce this article through rules promulgated in accordance with Chapter 1-2 (*Adoption of Rules*), which at a minimum shall include a notice and protest process for respondents disqualified pursuant to Section 10 (*Disqualification; Contract Voidable*), including:
- (1) written notice of the disqualification imposed pursuant to Section 10 (*Disqualification; Contract Voidable*);
 - (2) written notice of the right to protest the disqualification imposed;
 - and
 - (3) written notice of the right to request an impartial hearing process.

1.10.10. DISQUALIFICATION; CONTRACT VOIDABLE.

- (A) If the purchasing officer finds that a respondent has violated Section 2-7-104(1), the respondent is disqualified from participating in the solicitation to which the violation related.
- (B) The purchasing officer shall promptly provide written notice of disqualification to a disqualified respondent.

(C) If a respondent is disqualified from participating in a solicitation as a result of violating Section 2-7-104(1) and the solicitation is cancelled for any reason, that respondent is also disqualified from submitting a response to any reissue of the same or similar solicitation for the same or similar project. For the purposes of this section, the purchasing officer may determine whether any particular solicitation constitutes a "same or similar solicitation for the same or similar project".

(D) If a respondent violates Section 104(1) and is awarded a contract resulting from the solicitation to which the violation relates, the City may void that contract.

(E) Respondents that violate Section 2-7-104(1) three or more times during a five year period may be subject to debarment from participating in any new contracts with the City for a period of up to three years.

1.11 City's Minority-Owned and Women-Owned Business Enterprise / Disadvantaged Business Enterprise (MBE/WBE or DBE) Program Requirements. Good Faith Efforts. When a bidder cannot achieve the MBE/WBE or DBE goals or subgoals established for the project, the bidder must document its Good Faith Efforts to meet the goals or subgoals. Good Faith Effort evaluations will consider, at a minimum, the bidder's efforts to do the following:

1.11.1 Soliciting through at least two reasonable, available and verifiable means MBEs/WBEs within the Significant Local Business Presence boundaries at least seven (7) business days prior to the bid opening date to allow the MBEs/WBEs or DBEs to respond to the bid.

1.11.2 Providing interested MBEs/WBEs or DBEs adequate information about the bid documents and requirements, including addenda, in a timely manner to assist them in responding to the bid.

1.11.3 Negotiating in good faith with interested MBEs/WBEs DBEs that have submitted bids to the bidder.

1.11.4 Publishing notice in a local publication such as a newspaper, trade association publication or via electronic/social media.

1.11.5 Not rejecting MBEs/WBEs or DBEs as being unqualified without sound reasons based on a thorough investigation of their capabilities.

1.11.6 Making economically feasible portions of the work available to MBE/WBE or DBE subcontractors and suppliers and to select those portions of the work or material needs consistent with the available MBE/WBE or DBE subcontractors and suppliers, so as to facilitate meeting the goals or subgoals.

1.11.7 The ability or desire of the bidder to perform the project work with its own organization does not relieve the bidder of the responsibility to make Good Faith Efforts.

1.11.8 Bidders are not required to accept higher quotes in order to meet the goals or subgoals.

1.11.9 Effectively using the services of Minority Person/Women community organizations; Minority Person/Women Contractors groups; local, state and federal Minority Person/Women business assistance offices; and other organizations to provide assistance in

solicitation and utilization of MBEs, WBEs and/or DBEs.

1.11.10 In assessing minimum Good Faith Efforts, the OWNER may consider (1) whether the bidder sought guidance from the City of Austin Small and Minority Business Resources Department (SMBR) on any question regarding compliance with these requirements; and (2) the performance of other bidders in meeting the goals.

For additional information, refer to the MBE/WBE or DBE Compliance Program Requirements Volume of the Project Manual.

Bid shopping is not allowed in conjunction with this solicitation and may result in the disqualification of prospective bidders and subcontractors.

2. ESTIMATES OF QUANTITIES (UNIT PRICE CONTRACTS ONLY)

Quantities listed in unit price Bid form are to be considered approximate quantities and will be used only for comparison of Bids. Payment to CONTRACTOR will be made only for actual quantities of Work performed or materials furnished in accordance with Contract and it is understood that quantities may be increased or decreased as provided in Section 00700, General Conditions, and as may be modified by Section 00810, Supplemental General Conditions.

3. DRAWINGS, PROJECT MANUAL AND SITE (S) OF WORK

Before submitting a Bid, the Bidder shall carefully examine the Bid Documents, site(s) of the proposed Work, soils, and other conditions that may affect the performance of the Work to satisfy the Bidder as to character, quality and quantities of Work to be performed and materials to be furnished. By submitting a Bid, the Bidder will be deemed to have certified that the Bidder has complied with these requirements. If, during preparation of the Bid, the Bidder discovers any suspected discrepancies or errors, the Bidder must immediately notify the Authorized Contact Person in writing of the suspected discrepancy or error. Failure to provide written notice of any suspected discrepancies or errors may be cause for rejection of the Bid.

4. BID GUARANTY

All Bids shall be accompanied by a Bid guaranty in an amount of not less than five percent (5%) of the total Bid. If the total Bid amount is \$100,000 or less, Bidder has the option of providing a cashier's or certified check, made payable to City of Austin accompanied by a letter from a surety company indicating that Bidder can be bonded for the amount of the Project, or a Bid bond with Power of Attorney attached, issued by a solvent surety authorized under laws of the State of Texas and acceptable to OWNER. If the total Bid amount exceeds \$100,000, the only acceptable Bid guaranty will be a Bid bond with Power of Attorney attached, issued by a solvent surety authorized under laws of the State of Texas and acceptable to OWNER.

The Bid guaranty accompanying the Bid of the three (3) apparent low Bidders will be retained until Contract is awarded and successful Bidder executes Contract and furnishes required bonds and insurance, after which Bid guaranties will be returned to the Bidders. All other Bid guaranties will be returned after Bid certification. In the event that the Bidder to whom the Contract is awarded fails to timely execute the Contract, the Bidder agrees that the OWNER in its discretion may rescind the initial award and award the Contract to the next lowest responsible Bidder.

5. PERFORMANCE AND PAYMENT BONDS

When performance and/or payment bonds are required, each shall be issued in an amount equal to the Contract Amount as security for the faithful performance and/or payment of all Contractor's obligations under the Contract Documents. Performance and payment bonds shall be issued by a solvent corporate surety authorized to do business in the State of Texas, and shall meet any other requirements established by law or by OWNER pursuant to applicable law.

6. CONSIDERATION OF BID AMOUNT

For purpose of award, after Bids are opened, read aloud, reviewed, and certified, the total amount of the Bid, including accepted Bid alternates, will be considered the amount of the Bid. Certified Bid tabulations will be made available to the public through the City's Vendor Connection website, log on www.austintexas.gov/financeonline/vendor_connection/index.cfm. OWNER reserves the right to reject any or all Bids and to waive any minor informality in any Bid or solicitation procedure (a minor informality is one that does not affect the competitiveness of the Bids).

7. SUBMISSION OF BID

Each Bid must be completed and signed by person(s) authorized to bind individual, partnership, firm, corporation, or any other legal entity submitting the Bid, and, shall include the following in one envelope:

7.1 One copy of Bid form (Section 00300L or 00300U) completed and signed.

7.2 Acknowledgment of receipt of Addenda issued in spaces provided in Bid form.

7.3 Required Bid guaranty.

7.4 Copy of statement of legal entity status, as applicable, including but not limited to, as applicable, Statement of Sole Proprietorship, Articles of Partnership or Incorporation and resolution, or corporate board minutes, empowering signatory to bind Bidder, attested to by an officer of Bidder. The required information is set forth in Section 00100, Paragraph 15.

7.5 One copy of the Insurance Cost Form (Section 00425A), completed and signed (ROCIP projects only).

7.6 One copy of the Affidavit - Prohibited Activities (Section 00440), completed and signed.

7.7 One copy of the Nonresident Bidder Provisions (Section 00475), completed and signed, unless the project is federally funded.

7.8 One copy of the Nondiscrimination Certificate (Section 00630), completed and signed.

7.9 Required Information indicated in Drawings or Project Manual as specified in Section 00820.

Bid must be accompanied by a MBE/WBE or DBE Compliance Plan, signed by the authorized representative described above. Compliance Plans should be submitted separately, in a second envelope, prior to the date and time set forth in Section 00020,

Invitation for Bids. The Compliance Plan forms are included in the MBE/WBE Procurement Program Package or DBE Procurement Program Package (a separately bound volume).

Bid shall include all specified items in this section and be placed in a sealed envelope, clearly identified on outside as a Bid to OWNER, with Bidder's company name and address, project name, bid due date/time, signed acknowledgement of the number of Addenda received and authorized signature. Failure to submit Bid appropriately may subject Bidder to disqualification. Bid may be mailed or delivered (in person or by Federal Express, Express Mail or other delivery service) to:

City of Austin
Capital Contracting Office
One Texas Center
505 Barton Springs Rd.
Suite 1045-C
Austin, Texas 78704

When sent by mail, Federal Express, Express Mail, or other delivery service, sealed Bid (marked as indicated above) shall be enclosed in an additional envelope, or other appropriate packaging, clearly identified on outside as a Bid to OWNER with Bidder's name and address, Project name, and Bid date and time. It is the sole responsibility of the Bidder to ensure timely delivery of Bid. OWNER will not be responsible for failure of service on the part of the U.S. Post Office, courier services, or any other form of delivery service chosen by the Bidder. (See Section 00820, Modifications to Bidding Requirements and Contract Forms, for modifications to solicitations without MBE/WBE or DBE goals.)

In submitting its Bid, Bidder certifies that it has not lobbied the City or its officials, managers, employees, consultants, or contractors in such a manner as to influence or to attempt to influence the bidding process. In the event it reasonably appears that the Bidder influenced or attempted to influence the bidding process, the City may, in its discretion, reject the Bid.

8. WITHDRAWAL OF BID

A Bid may be withdrawn by a Bidder, provided an authorized individual of the Bidder submits a written request to withdraw the Bid prior to the time set for opening the Bids.

9. REJECTION OF BIDS

9.1 The following **will** be cause to reject a Bid:

9.1.1 Failure to submit Section 00300 (Bid Form) and signed by an individual empowered to bind the Bidder.

9.1.2 Bids which are not accompanied by acceptable Bid guaranty, with Power of Attorney attached, or a letter certifying the Bidder's ability to be bonded, from a surety company, in accordance with Paragraph 4 above.

9.1.3 More than one Bid for same Work from an individual, firm, partnership or corporation.

9.1.4 Evidence of collusion among Bidders.

9.1.5 Sworn testimony or discovery in pending litigation with OWNER which discloses misconduct or willful refusal by contractor to comply with subject contract or instructions of OWNER.

9.1.6 Failure to submit MBE/WBE or DBE Compliance Plan in accordance with the separately bound volume titled MBE/WBE Procurement Program Package or DBE Procurement Program Package.

9.1.7 Failure to have an authorized agent of the Bidder attend the mandatory Pre-Bid Conference, if applicable.

9.1.8 Bids received from a Bidder who has been debarred or suspended by OWNER's Purchasing Officer.

9.1.9 Bids received from a Bidder when Bidder or principals are currently debarred or suspended by Federal, State or City governmental agencies. (Applicable for Bid amounts equal to or in excess of \$25,000.00).

9.1.10 Failure to submit any of the items specified above in paragraph 7, "Submission of Bid", 7.1 through 7.9.

9.1.11 Bids received from a Bidder, who is identified on a list maintained by the Texas Comptroller of Public Accounts as a company known to have contracts with or provide supplies or services to a foreign terrorist organization, unless otherwise exempted from sanctions by the United States government.

9.2 The following may be cause to reject a Bid:

9.2.1 Poor performance in execution of work under a previous City of Austin contract.

9.2.2 Failure to achieve reasonable progress on an existing City of Austin contract.

9.2.3 Default on previous contracts or failure to execute Contract after award.

9.2.4 Evidence of failure to pay Subcontractors, Suppliers or employees in accordance with Contract requirements.

9.2.5 Bids containing omissions, alterations of form, additions, qualifications or conditions not called for by OWNER, or incomplete Bids may be rejected. In any case of ambiguity or lack of clarity in the Bid, OWNER reserves right to determine most advantageous Bid or to reject the Bid.

9.2.6 Failure to acknowledge receipt of Addenda.

9.2.7 Failure to submit any of the items specified below in paragraph 11, "Submission of Post Bid Information".

9.2.8 Failure to identify a dollar amount (price) of a unit price(s) in the 00300U including all Bid Alternates in the Bid Form 00300U or 00300L.

9.2.9 Failure to submit post-Bid information within the allotted time(s) (see paragraph 11 for post-Bid requirements).

9.2.10 Failure to timely execute Contract after award.

9.2.11 Previous environmental violations resulting in fines or citations by a governmental entity (i.e. U.S. Environmental Protection Agency, Texas Commission on Environmental Quality, etc.).

9.2.12 Safety record as set forth in Section 00410, Statement of Bidder's Safety Experience.

9.2.13 Failure of Bidder to demonstrate the minimum experience required as specified in Section 00400 if that Section is included in the bidding documents.

9.2.14 Evidence of Bidder's lack of sufficient resources, workforce, equipment or supervision, if required by inclusion of appropriate attachments in Section 00400.

9.2.15 Evidence of poor performance on previous Projects as documented in Owner's project performance evaluations.

9.2.16 Unbalanced Unit Price Bid: "Unbalanced Bid" means a Bid, which includes a Bid that is based on unit prices which are significantly less than cost for some Bid items and significantly more than cost for others. This may be evidenced by submission of unit price Bid items where the cost are significantly higher/lower than the cost of the same Bid items submitted by other Bidders on the project.

10. PROTEST PROCEDURES

The OWNER's Capital Contracting Officer has the authority to settle or resolve any claim of an alleged deficiency or protest. The procedures for notifying OWNER of an alleged deficiency or filing a protest are listed below. If you fail to comply with any of these requirements, the Capital Contracting Officer may dismiss your complaint or protest.

10.1 Prior to Bid opening: If you are a prospective Bidder and you become aware of the facts regarding what you believe is a deficiency in the solicitation process before the Bid is opened, you must notify OWNER in writing of the alleged deficiency before that date, giving OWNER an opportunity to resolve the situation prior to the Bid opening.

10.2 After Bid opening: If you submit a Bid to OWNER and (1) you have been found non-responsive, or (2) you believe that there has been a deficiency in the solicitation process or the award, you have the opportunity to protest the solicitation process or the recommended award as follows:

10.2.1 You must file written notice of your intent to protest within four (4) calendar days of the date that you know or should have known of the facts relating to the protest. If you do not file a written notice of intent within this time, you have waived all rights to protest the solicitation process or the award.

10.2.2 You must file your written protest within fourteen (14) calendar days of the date that you know or should have known of the facts relating to the protest unless you know of the facts before the Bid has been opened. If you know of the facts before that date, you must notify OWNER as stated above.

10.2.3 You must submit your protest in writing and must include the following

information:

- .1 your name, address, telephone, and email address;
- .2 the solicitation number and the CIP number, if applicable;
- .3 a detailed statement of the factual grounds for the protest, including

copies of any relevant documents.

10.2.4 Your protest must be concise and presented logically and factually to help with OWNER's review.

10.2.5 When OWNER receives a timely written protest, the Capital Contracting Officer will determine whether the grounds for your protest are sufficient. If the Capital Contracting Officer decides that the grounds are sufficient, the Capital Contracting Office will schedule a protest hearing, usually within five (5) working days. If the Capital Contracting Officer determines that your grounds are insufficient, you will be notified of that decision in writing.

10.2.6 The protest hearing is informal and is not subject to the Open Meetings Act. The purpose of the hearing is to give you a chance to present your case; it is not an adversarial proceeding. Those who may attend from OWNER are: representatives from the department that requested the purchase, the Law Department, the Capital Contracting Office, and other appropriate City staff. You may bring a representative or anyone else that will present information to support the factual grounds for your protest with you to the hearing.

10.2.7 A decision will usually be made within fifteen (15) calendar days after the hearing.

10.2.8 The Capital Contracting Officer will send you a copy of the hearing decision after the appropriate City staff has reviewed the decision.

10.2.9 When a protest is filed, OWNER usually will not make an award until a decision on the protest is made. However, OWNER will not delay an award if the City Manager or the Capital Contracting Officer determines that:

- .1 OWNER urgently requires the supplies or services to be purchased, or
- .2 Failure to make an award promptly will unduly delay delivery or

performance.

In those instances, the Capital Contracting Office will notify you and make every effort to resolve your protest before the award.

The protest or notice of intent and the protest shall be submitted in writing to the following address:

City of Austin
Capital Contracting Office
ATTN: Capital Contracting Officer
One Texas Center
505 Barton Springs Rd.
Suite 1045-A
Austin, Texas 78704
PHONE: 512/974-7141

11. SUBMISSION OF POST BID INFORMATION

11.1 Prior to determination of the certified low Bidder, the three (3) apparent low Bidders must submit to OWNER the following information within three (3) business days of receipt of notice of apparent low Bidder status by the OWNER:

11.1.1 One copy of Attachments A-I and any other specifically designated Attachments of the Statement of Bidder's Experience (Section 00400), completed and signed. (Unless provided to the contrary in Section 00820 Modifications to Bidding Requirements and Contract Forms).

11.1.2 One Copy of the Certificate of Non-Suspension or Debarment (Section 00405), completed and signed. (Applicable for Bid amounts equal to or in excess of \$25,000.00.)

11.1.3 One copy of Section 00410, Statement of Bidder's Safety Experience, including required attachments, completed and signed.

11.1.4 One copy of the Title VI Assurances Appendix A (Section 00631), completed and signed.

11.1.5 One copy of the Title VI Assurance Appendix E (Section 00632), completed and signed.

11.1.6 One copy of Exhibit A Federal Provisions (Section 00810A, pages 1-9) completed and signed. (Federal projects only)

11.1.7 Such other information as is required to evaluate Bid or Bidder.

11.2 Upon notification of status as certified low Bidder, Bidder shall submit the following information to OWNER within three (3) business days:

11.2.1 Confirmation Letters between Bidder and all subcontractor(s) and all supplier(s) identified in the MBE/WBE Compliance Plan.

11.2.2 Section 00425B, Contractor Affidavit of Receipt and Provision of ROCIP Information, and Subcontractor Affidavit of Receipt and Provision of ROCIP Information (for Subcontractor(s) of all tiers identified in the MBE/WBE Compliance Plan). For ROCIP projects.

11.2.3 Such other information as required. (Note: OWNER reserves the right to solely determine whether the comparable experience documentation provided by the Bidder is sufficient and relevant to the Work described in the Contract Documents for the Bidder to be considered a responsible Bidder. In addition, the Bidder acknowledges and agrees that the failure to timely provide the additional information required by this section will result in a determination that, for the purposes of this solicitation, the Bidder has not provided sufficient information for the OWNER to be able to determine that the Bidder is a responsible Bidder.)

12. AWARD AND EXECUTION OF CONTRACT

OWNER will process Bids expeditiously. Award of Contract will be to the lowest, responsible Bidder meeting all requirements of the Bid Documents. OWNER may not award Contract to a nonresident Bidder unless the nonresident underbids the lowest Bid submitted by a responsible resident Bidder by an amount that is not less than the amount by which a

resident Bidder would be required to underbid the nonresident Bidder to obtain a comparable contract in the state in which the nonresident's principal place of business is located.

Award of Contract will occur within the period identified on the Bid form, unless mutually agreed between the parties. Capital Contracting Officer shall submit recommendation for award to the City Council for those project awards requiring City Council action. Contract will be signed by City Manager or his/her designee after award and submission of required documentation by Bidder. Contract will not be binding upon OWNER until it has been executed by both parties. OWNER will process the Contract expeditiously. However, OWNER will not be liable for any delays prior to the award or execution of Contract.

Upon contract award, the selected Bidder must submit either their existing or an updated personnel policy (on letterhead) documenting conformity with City Code, Chapter 5-4, § 5-4-2. If the company does not submit a copy of their personnel policy incorporating the non-discrimination policy, the City of Austin Nondiscrimination Policy (Section 00630) will be considered the Bidder's nondiscrimination policy.

In any case of ambiguity or lack of clarity in the Bid, OWNER reserves the right to determine the most advantageous Bid or to reject the Bid.

Notwithstanding anything in this Section 00100 to the contrary, the OWNER may award a contract for construction services in an amount of less than \$100,000 to a bidder whose principal place of business is in the City of Austin and whose bid is within 5% of the lowest bid price received from a bidder whose principal place of business is not within the City of Austin, if the City finds that the local bidder offers the City the best combination of contract price and additional economic development opportunities for the City created by the contract award including the employment of resident of the City and increased tax revenues to the City.

13. PARTNERING

In order to complete the Work in a manner that is most beneficial to the OWNER and CONTRACTOR, OWNER and CONTRACTOR may form a "Partnering Team", which will include the E/A, and any major Subcontractors. This partnering relationship will draw on the strength of all parties to identify and achieve mutual goals. The objectives of this partnering relationship are effective and efficient communication and Contract performance, which is intended to ensure that the Project is completed within budget, on schedule, and in accordance with the Drawings and Specifications and other Contract requirements. While the partnering relationship will be multilateral in makeup and participation will be totally voluntary, the OWNER and CONTRACTOR agree to cooperate and use reasonable good faith efforts to discuss and resolve any and all Project issues and disputes. Section 01100, Special Project Procedures and/or Section 01200, Project Meetings contain additional information regarding the intent of the partnering relationship and responsibilities of the entities entering into the partnering charter.

14. ROCIP REQUIREMENTS

If the insurance on this Project will be under the Rolling Owner Controlled Insurance Program (ROCIP), the Bidder is directed to Section 00810, Supplemental General Conditions, Section 00820, Modifications to Bidding Requirements and Contract Forms, and the Project Safety Manual included with these contract documents for information and bidding requirements.

The Insurance Cost Form, Section 00425A must be accurately completed and submitted with the Bid to indicate insurance removed from Base Bid and Alternates. CONTRACTOR shall remove from the Bid the cost of insurance for the CONTRACTOR and Subcontractors of all tiers working on site.

The Rolling Owner Controlled Insurance Program Information, Section 00425 B, Contractor Affidavit of Receipt and Provision of ROCIP Information and Subcontractor Affidavit of Receipt and Provision of ROCIP Information for subcontractor(s) of all tiers identified in the MBE/WBE Compliance Plan must be accurately completed and submitted by the certified low bidder as a post bid submittal. Subcontractor Affidavits must be submitted throughout the duration of the Contract as Subcontractor(s) are added.

15. SIGNATURE REQUIREMENTS

The Bid and any subsequent supporting Bid documents and Contract must be executed in the Bidder's full name and legal entity status by an authorized representative of the Bidder and accompanied by sufficient documentation, which clearly indicates not only the legal name and entity status of Bidder, but also the capacity and authority of the person signing on behalf of Bidder. Accordingly, a partnership/joint venture must file its partnership/joint venture agreement, a corporation must file its articles and bylaws, a limited liability company must file its certificate of organization and article of organization and regulations, and a limited partnership must file not only limited partnership agreement and the certificate of limited partnership, but also the documentation for its general partner, and any Bidder must file a copy of any assumed name certificate, or such limited portion of such documents reasonably establishing signature authority.

15.1 The following samples show the entity information and signature requirements that will apply to all Bid and contract execution documents for the type of entity indicated:

15.1.1 Individual/Sole Proprietor (sample)

The individual/sole proprietor must sign the document in his or her personal capacity or in any assumed name capacity accompanied by a copy of any assumed name certificate.

Name of Contractor (d/b/a, if appropriate), a Sole Proprietor By: _____
Printed or Typed Name: _____

15.1.2 Partnership/Joint Venture (sample)

A partner/joint venturer must sign the document in his or her capacity as a partner/joint venturer and in any assumed name capacity accompanied by a copy of the assumed name certificate, if any, and a copy of the partnership or joint venture agreement, as applicable, with additional documentation, if necessary, establishing the authority of the signatory individual.

Name of Partnership/Joint Venture, a Texas Partnership/JV (as appropriate) By: _____
Printed or Typed Name: _____
Title: _____, (Partner, managing partner, venturer, managing venturer, as appropriate), Authorized Representative

15.1.3 Corporation (sample)

An authorized officer or agent of the corporation must sign the documents on behalf of the corporation in his or her capacity as the authorized representative of the corporation accompanied by a copy of a corporate resolution and minutes granting such authority with a certificate of an officer of the corporation as to the authority of the signatory to bind the CONTRACTOR signed and dated no more than one week before the date of execution of the document.

Name of Contractor, Inc. or Co., a Texas corporation (as appropriate) By: _____

Printed or Typed Name: _____

Title: _____, (Officer or Agent, as appropriate), Authorized Representative

15.1.4 Limited Liability Company (sample)

An authorized manager or member of the LLC must sign the document in his or her capacity as a manager or member accompanied by a copy of the LLC's certificate of organization and articles of organization and regulations evidencing such person's signatory authority.

Name of Contractor, L.L.C., a Texas limited liability company (as appropriate) By: _____

Printed or Typed Name: _____

Title: _____, Manager or Member (as appropriate), Authorized Representative

15.1.5 Limited Partnership (sample)

The general partner of a limited partnership must execute the documents on behalf of the limited partnership, accompanied by copy of the limited partnership agreement and the certificate of limited partnership. In addition, the signatory must sign the documents in his or her capacity as an authorized officer or agent of the corporation or member or manager of the LLC, as appropriate, accompanied by a copy of the corporate or LLC documentation stipulated above.

Name of Contractor, Ltd., a Texas limited partnership (as appropriate) By: _____

Name of General Partner (usually a Texas corporation or an L.L.C.) By: _____

Printed or Typed Name: _____

Title: _____, Officer or Agent of Corporation or LLC Authorized Representative

16. CONTRACTOR EVALUATION

The Owner will review and evaluate the Contractor's Work and performance on the Project and provide the Contractor with a written Contractor Evaluation Report in accordance with City of Austin Administrative Rule R161-13.37. Rule R161-13.37 provides an appeal process. <http://www.austintexas.gov/departments/contract-management>

17. TEXAS ETHICS COMMISSION CERTIFICATE OF INTERESTED PARTIES DISCLOSURE FORM

17.1 Definitions:

17.1.1 "Interested Party" – means a person who has a controlling interest in a Business Entity with whom the Owner contacts or who actively participates in facilitating the Contract or negotiating the terms of the Contract, including a broker, intermediary, adviser, or attorney for the Business Entity.

17.1.2 “Business Entity” – means any entity recognized by law through which business is conducted, including a sole proprietorship, partnership, or corporation.

17.2 As a condition to entering the Contract, the Business Entity constituting the successful Bidder must provide a Texas Ethics Commission Certificate of Interested Parties Form to the Owner at the time the Business Entity/Bidder submits the signed Contract to the Owner in full compliance with the following requirements under which the successful Bidder shall:

17.2.1 Go to the Ethics Commission’s website (www.ethics.state.tx.us),

17.2.2 Complete the “Interested Parties” information, in accordance with the requirements of the Texas Ethics Commission Rules published at Title 1, Part 2, Chapter 46, of the Texas Administrative Code and available on the referenced website,

17.2.3 Include the City’s contract identification number,

17.2.4 Include a short description of the goods or services to be used by the City,
and

17.2.5 Indicate whether each interested party has a controlling interest in the business entity, is an intermediary in the contract for which the disclosure is being filed, or both.

17.3 In accordance with the Commission Rules, the Certificate of Filing and completed Certificate of Interested Parties must be (i) printed, (ii) signed by an authorized agent of the business entity, and (iii) submitted to the City at the time of the submission of the signed contract to the City. The City then must notify the Ethics Commission in electronic format of receipt of the document within 30 days of contracting and the Commission will make the disclosure of interested parties available to the public on its website.

END

GEOTECHNICAL DATA

Section 00220

1. OVERVIEW

OWNER has not obtained geotechnical information. The CONTRACTOR shall be familiar with the subsurface materials and conditions on the Project and shall be knowledgeable of how they will affect the Work. The following is a partial listing of sources of information available to the CONTRACTOR about subsurface materials and conditions: geologic maps, publications and reports available from the University of Texas Bureau of Economic Geology at the J.J. Pickle Research Center in Austin, Texas; subcontractors familiar with local ground conditions; and, local consulting geologists and geotechnical engineers. The CONTRACTOR may make their own subsurface investigations.

END

LUMP SUM BID FORM

Section 00300L

City Manager
Austin, Texas

The undersigned, in compliance with the Invitation for Bids for construction of the following Project for the city of Austin, Texas:

Solicitation No.:	CLMC 725A
Project:	DCP II - Exterior Tile Repair Rebid

Having examined the Project Manual, Drawings and Addenda, the site of the proposed Work and being familiar with all of the conditions surrounding construction of the proposed Project, having conducted all inquiries, tests and investigations deemed necessary and proper; hereby proposes to furnish all labor, permits, material, machinery, tools, supplies and equipment, and incidentals, and to perform all Work required for construction of the Project in accordance with the Project Manual, Drawings and Addenda within the time indicated.

BASE BID	\$
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- The "Base Bid" amount must be used in the MBE/WBE Compliance Plan Summary Page to determine subcontractor participation levels for the established MBE/WBE procurement goals.

ALTERNATES:

ALTERNATE NO. 1:	Concrete Substrate Wall Repair with Self-Consolidating Concrete.....	\$
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TOTAL BID	\$
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Includes Base Bid with Alternate 1 (if accepted at Contract Execution).

Notes:

1. For a more detailed explanation of Bid alternates, see Section 01030.
2. **MINIMUM WAGES:** Workers on Project shall be paid not less than wage rates, including fringe benefits, as published by the Department of Labor (DOL) for Building Construction and Heavy and Highway Trades "AS APPLICABLE" and/or the minimum wage required by City of Austin Ordinance No. 20160324-015, whichever is higher. The Total Minimum Wage required can be met using any combination of cash and non-cash qualified fringe benefits provided the cash component meets or exceeds the minimum wage required.

Bidding Requirements, Contract Forms and Conditions of the Contract

UNIT PRICES: The undersigned Bidder agrees that, in case of an authorized adjustment to the scope of Work shown, the following unit price(s) will be used in adjusting the Contract Amount:

Item Description	Unit Price	Per	Unit	Quantity
Additional Glass Tile Repair	\$	Per	Tile	25
Additional Concrete Sidewalk Replacement	\$	Per	Sq. ft.	100

BID GUARANTY: A Bid guaranty must be enclosed with this Bid, as required in Section 00020, in the amount of not less than five percent (5%) of the total Bid. Following the Bid opening, submitted Bids may not be withdrawn for a period of ninety (90) Calendar Days. Award of Contract will occur within this period, unless mutually agreed between the parties. The Bid guaranty may become the property of the OWNER, or the OWNER may pursue any other action allowed by law, if:

- Bidder withdraws a submitted Bid within the period stated above;
- Bidder fails to submit the required post Bid information within the period specified in Section 00020 or 00100, or any mutually agreed extension of that period; or
- Bidder fails to execute the Contract and furnish the prescribed documentation (bonds, insurance, etc.) needed to complete execution of the Contract within five (5) Working Days after notice of award, or any mutually agreed extension of that period.

TIME OF COMPLETION: The undersigned Bidder agrees to commence work on the date specified in the written "Notice to Proceed" to be issued by the OWNER and to substantially complete construction of the improvements, as required by the Project Manual, Drawings and Addenda for the Work within One Hundred (100) Calendar Days.

The Bidder further agrees to reach Final Completion within Thirty (30) Calendar Days after Substantial Completion as required by the Project Manual, Drawings and Addenda for the work.

The Bidder further agrees that should the Bidder fail to finally complete the Work within the number of days indicated in the Bid or as subsequently adjusted, Bidder shall pay the liquidated damages for each consecutive day thereafter as provided below; unless the OWNER elects to pursue any other action allowed by law.

WAIVER OF ATTORNEY FEES: In submitting its bid, in consideration for the waiver of its right to attorney's fees by the OWNER, the Bidder knowingly and intentionally agrees to and shall waive the right to attorney's fees under Section 271.153 of the Texas Local Government Code in any administrative proceeding, alternative dispute resolution proceeding, or litigation arising out of or connected to any Contract awarded pursuant to this solicitation process.

LIQUIDATED DAMAGES: The Bidder understands and agrees that the timely completion of the described Work is of the essence. The Bidder and OWNER further agree that the OWNER's actual damages for delay caused by failure to timely complete the Project are difficult, if not impossible to measure. However, with respect to the additional administrative and consultant costs to be incurred by OWNER, the reasonable estimate of such damages has been calculated and agreed to by OWNER and Bidder.

Therefore, the Bidder and the OWNER agree that for each and every Calendar Day the Work or any portion thereof, remains incomplete after the Final Completion date as established by the above paragraph, "Time of Completion", payment will be due to the Owner in the amount of four hundred dollars (\$400) per Calendar Day as liquidated damages, not as a

Bidding Requirements, Contract Forms and Conditions of the Contract

penalty, but for delay damages to the OWNER. Such amount shall be deducted by the OWNER from any Contract payment due.

In the event of a default or breach by the CONTRACTOR and demand is made upon the surety to complete the project, in accordance with the Contract Documents, the surety shall be liable for liquidated damages pursuant to the Contract Documents in the same manner as the CONTRACTOR would have been.

MINOR INFORMALITY: OWNER reserves the right to reject any or all Bids and to waive any minor informality in any Bid or solicitation procedure (a minor informality is one that does not affect the competitiveness of the Bidders).

ADDENDUM: The undersigned acknowledges receipt of the following addenda:

Addendum No. 1 dated		Received	
Addendum No. 2 dated		Received	
Addendum No. 3 dated		Received	
Addendum No. 4 dated		Received	

BID DOCUMENT EXECUTION AND ACKNOWLEDGEMENT: The undersigned Bidder certifies that he/she has read and understands Section 00020 Invitation for Bids, Section 00100 Instructions to Bidders, and all other requirements applicable to the bidding process provided in the Bid and Contract Documents.

Bidder will initial each of the blanks set forth below to represent and certify that the Bidder has completed, executed, and enclosed the corresponding supplemental Bid Documents with its Bid.

Bidder acknowledges and agrees that in addition to any signatures required to be set forth in the following supplemental Bid Documents, by its signature below, Bidder is bound to the terms and conditions of each of the following documents, which are incorporated herein by reference:

____ 00440 Affidavit - Prohibited Activities
____ 00475 Nonresident Bidder Provisions
____ 00630 Non-Discrimination and Non-Retaliation Certificate
____ MBE/WBE Compliance Document
____ Copy of Corporate Resolution and minutes with certificate of officer of Bidder as to authority of signatory to bind Bidder is to be signed and dated no earlier than one week before Bid date, and attached to this document (Reference Section 00100, Paragraph 15).

Corporate Secretary, *if Bidder is a Corporation

(Seal)

Bidder

Authorized Signature

Title

Date

Address

Telephone Number / FAX Number

Email for Person Signing Bid

Email for Bidder's Primary Contact Person

END

Statement of Bidders Experience

Section 00400

Project Name:	DCP II - Exterior Tile Repair Rebid
Name of Bidder:	
Solicitation Number:	CLMC 725A
CIP ID Number:	

Bidder must complete all Attachments to Section 00400 clearly and comprehensively. If necessary, responses may be continued on separately attached sheets.

To be considered a responsive and responsible bidder, the apparent three (3) low Bidders must complete and submit within three (3) working days of notification of low bidder status Attachments A through I in accordance with Article 11, Section 00100. Contractor Performance Evaluations for previous work with the City will be included in the assessment of the Bidder's experience. Any information in Attachments A through I and in the Contractor's Performance Evaluations that indicates the Bidder or a "Subcontractor" is not responsible or that might negatively impact a Bidder's ability to complete the Work within the Contract Time and for the Contract Price may result in the Bid being rejected.

The Bidder is responsible for the accuracy and completeness of all of the information provided by the Bidder or a proposed Subcontractor in response to this Invitation for Bids.

POST-BID SUBMITTALS

ATTACHMENT A – BIDDER’S INFORMATION

ATTACHMENT B – EXPERIENCE REQUIREMENTS (GENERAL CONTRACTOR)

ATTACHMENT C – PROJECT MANAGER AND SUPERINTENDENT EXPERIENCE

ATTACHMENT D – EXPERIENCE REQUIREMENTS (SPECIFIC CONSTRUCTION OR TECHNICAL EXPERIENCE)

ATTACHMENT E – AVAILABLE EQUIPMENT

ATTACHMENT F – AVAILABLE WORKFORCE

ATTACHMENT G – CURRENT PROJECTS

ATTACHMENT H – COMPLETED PROJECTS

ATTACHMENT I – BIDDER’S AUTHENTICATION

**ATTACHMENT A
BIDDER'S INFORMATION**

Attention Bidder: Complete and return within three (3) days of notification of the three (3) low bidders' status.

Solicitation Number:	CLMC 725A
CIP ID Number:	

A.	Name of Bidder:	
B.	Bidder's Permanent Address:	
C.	Bidder's Phone Number:	
D.	Number of years in business under current company name:	

(Note: Bidder must have been in existence for a minimum of one (1) year under its current company name. Changes in company name during the experience period are acceptable, if the continuity of the company can be demonstrated. Attach separate documentation, if applicable.)

If Bidder answers "Yes" for any of questions D through G, Bidder must attach separate sheets with a brief description or explanation of the answer and provide pertinent contact information (parties' names, addresses and telephone numbers).

A.	Has the Bidder ever defaulted on a contract?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
B.	Are there currently any pending judgements, claims, or lawsuits against the Bidder?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
C.	Does Bidder currently have any pending claims, judgements or lawsuits against any prior client?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
D.	Is the Bidder or its principals involved in any bankruptcy or reorganization proceedings?	<input type="checkbox"/> Yes	<input type="checkbox"/> No

ATTACHMENT B

EXPERIENCE REQUIREMENTS (GENERAL CONTRACTOR)

Attention Bidder: Complete and return within three (3) days of notification of the three (3) low bidders' status.

Solicitation Number:	CLMC 725A
CIP ID Number:	

GENERAL CONTRACTOR EXPERIENCE:

Bidder must list and describe Bidder's (not proposed subcontractors') construction experience as a general contractor for a minimum of three (3) successfully completed projects of comparable size, scope and complexity to the Work described in the Contract Documents. Bidder should refer to the Section 01010 Summary of Work, subsection 1.2 Description of Work, to determine what is reasonably comparable. Decisions on "comparability" are at the complete discretion of the OWNER.

Bidder must have completed the projects within the past five (5) years.

Bidding Requirements, Contract Forms and Conditions of the Contract

Attention Bidder: Duplicate this form for each of the three (3) projects.

PROJECT NO. _____		
Name of Project:		
Location:		
OWNER's Name and Address:		
OWNER's Contact Person (Print):		
Phone/Fax No.		
Initial Contract Price:		
Final Contract Price:		
Contract Start Date: <i>(Date of Notice to Proceed)</i>		
Contract Time:	Calendar Days:	Working Days:
Contract Substantial Completion Date:		
Actual Substantial Completion Date:		
If contract time extensions were added to the contract as a result of Bidder's responsibilities, provide a short explanation of each:		
Project Description and why it is comparable to this Contract:		

ATTACHMENT C

PROJECT MANAGER & SUPERINTENDENT EXPERIENCE

Attention Bidder: Complete and return within three (3) days of notification of the three (3) low bidders' status.

Name of Bidder:	
Solicitation Number:	CLMC 725A
CIP ID Number:	

Bidder must attach resumes for the Project Manager and Superintendent who will be assigned to this project. The resumes must demonstrate that these individuals have worked on at least three (3) similar, successfully completed projects in the capacity of Project Manager or Superintendent, or other responsible supervisory capacity, as applicable, during the last 10 years.

Project Manager (name): _____

Superintendent (name): _____

Note: Attach Resumes & Experience

Attention Bidder: Complete and return within three (3) days of notification of the three (3) low bidders' status.

SPECIFIC CONSTRUCTION EXPERIENCE (GENERAL CONTRACTOR OR SUBCONTRACTOR PERFORMING THE WORK)

Bidder must provide the following project history information for each Construction Experience requirement listed below. OWNER may in its reasonable discretion deem the provided experience information insufficient and reject the Bid.

For each Construction Experience item listed below, list and describe the applicable Construction Experience for a minimum of three (3) successfully completed projects of comparable size, scope, and complexity to the Work described for this project. Comparability requirements may be spread among the three (3) projects per item submitted, e.g. One Project may demonstrate comparable size, another Project may demonstrate comparable scope and another may demonstrate comparable complexity. Decisions on "comparability" are at the complete discretion of the OWNER.

The Work must have been performed within the past five (5) years.

Bidder must provide all requested information in a complete, clear, and accurate manner. If necessary, additional information may be provided on separate attached sheets. Failure to provide any requested information may cause the Bid to be rejected by OWNER as non-responsive.

If the Bidder proposes to fulfill any specific construction experience requirement with subcontracted resources, the applicable Subcontractor must be included in the Bidder's Original MBE/WBE Compliance Plan. Failure to include subcontractors on the MBE/WBE Compliance Plan may render your bid non-responsive.

SPECIFIC CONSTRUCTION EXPERIENCE ITEMS REQUIRED:

- ITEM 1. Furnish and/or installation of exterior glass tile vertical construction (over 15 feet tall), including installation of control joints and sealants.
- ITEM 2. Furnish and/or installation of decorative tiles to match as-designed artistic pattern, total area of no less than 500 square feet.
- ITEM 3. Furnish and/or installation of vertical shotcrete and formed-and-poured reinforced concrete construction of a total volume no less than 5 cubic yards.
- ITEM 4. Furnish and/or installation of horizontal concrete slabs on grade or sidewalk, including demolition of existing concrete slabs.

The Bidder shall complete and duplicate the following specific Construction Experience Form as required to provide the requested documentation for a minimum of three (3) successfully completed projects for each of the above specific Construction Experience requirements.

CONSTRUCTION EXPERIENCE DOCUMENTATION FORM		
EXPERIENCE ITEM NUMBER:		
Project Number:		
Does Bidder plan to self-perform this work?		<input type="checkbox"/> Yes <input type="checkbox"/> No
If "NO", provide the following Subcontractor's information:		
Company's Address:		
Permanent Address:		
Phone No.		
# of years Subcontractor has been in business under current company name:		
Name of Project:		
Location:		
OWNER's Name:		
OWNER's Address:		
OWNER's Contact Person (Print):		
Phone/Fax No.:		
Initial Contract Price:		
Final Contract Price:		
Contract Start Date: <i>(Date of Notice to Proceed)</i>		
Contract Time:		Calendar Days: <input type="text"/> Working Days: <input type="text"/>
Contract Substantial Completion Date:		
Actual Substantial Completion Date:		
If contract time extensions were added to the contract as a result of Bidder's responsibilities, provide a short explanation of each:		
Project Description and why it is comparable to this Contract:		

**ATTACHMENT E
AVAILABLE EQUIPMENT LIST**

Attention Bidder: Complete and return within three (3) days of notification of the three (3) low bidders' status.

Name of Bidder:	
Solicitation Number:	CLMC 725A
CIP ID Number:	

Provide a list of equipment that is available to the CONTRACTOR or its Subcontractor(s) and is specifically intended to be used on the Work under this Contract. Also indicate whether the equipment is owned or will be leased by the CONTRACTOR and/or Subcontractor(s).

<u>EQUIPMENT</u>	<u>OWNED OR LEASED</u>	<u>COMMITTED TO ANOTHER PROJECT?</u> (Yes / No)	<u>AVAILABLE / RELEASE DATE</u>

Use additional pages, as necessary

**ATTACHMENT F
AVAILABLE WORKFORCE**

Attention Bidder: Complete and return within three (3) days of notification of the three (3) low bidders' status.

Name of Bidder:	
Solicitation Number:	CLMC 725A
CIP ID Number:	

Provide a list of the available workforce for the various disciplines and crafts required for the Work on this Project, including the number of work crews, and number and worker classification for each equipment operator, mechanic, and laborer for that portion of the Work that Bidder will actually perform.

Number of Anticipated Work Crews: _____

DISCIPLINE OR CRAFT	NO. OF EMPLOYEES	COMMITTED TO ANOTHER PROJECT? (Yes / No)	AVAILABLE / RELEASE DATE
Superintendent			
Skilled Workers: Glass Tile Masons			
Skilled Workers: Formwork Installers / Shotcrete Installers			
Semiskilled Workers: Concrete Surface Preparers			
Equipment Operators: Man-Lift Operators			
Other			

Use additional pages, as necessary

ATTACHMENT G

CURRENT PROJECT LISTING (INCLUDING ALL CITY OF AUSTIN PROJECTS)

Attention Bidder: Complete and return within three (3) days of notification of the three (3) low bidders' status.

Name of Bidder:	
Solicitation Number:	CLMC 725A
CIP ID Number:	

Provide a list of all current projects, including all City of Austin projects. Include the following for all jobs that Bidder is currently committed to or has currently underway: brief statement regarding the job type; estimated project duration; project contact; and project description.

Name of Project:		
Location:		
Type of Job:		
City of Austin Job?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Project Start Date		
Estimated Completion Date:		
Project Contact:		
Brief Description:		

Name of Project:		
Location:		
Type of Job:		
City of Austin Job?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Project Start Date		
Estimated Completion Date:		
Project Contact:		
Brief Description:		

ATTACHMENT H

COMPLETED PROJECTS (INCLUDING ALL CITY OF AUSTIN PROJECTS)

Attention Bidder: Complete and return within three (3) days of notification of the three (3) low bidders' status.

Name of Bidder:	
Solicitation Number:	CLMC 725A
CIP ID Number:	

Provide a list of all completed projects, including all City of Austin projects that Bidder has completed in the past five (5) years by calendar year (or life of company if less than five (5) years). Include the following: a brief statement regarding the job type, the estimated project duration, project contact, and project description.

Calendar Year of _____

Name of Project:		
Location:		
Type of Job:		
City of Austin Job?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Project Duration:		
Project Contact:		
Brief Description:		

Name of Project:		
Location:		
Type of Job:		
City of Austin Job?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Project Duration:		
Project Contact:		
Brief Description:		

Use additional pages as necessary to achieve a representative listing covering 5 years

**ATTACHMENT I
BIDDERS AUTHENTICATION**

(Attention Bidder: Complete and return within three (3) days of notification of the three (3) low bidders' status)

Solicitation Number:	CLMC 725A
CIP ID Number:	

THE STATE OF TEXAS
COUNTY OF TRAVIS

I certify that my responses and the information provided in Attachments A-H are true and correct to the best of my personal knowledge and belief and that I have made no willful misrepresentations in this Section, nor have I withheld any relevant information in my statements and answers to questions. I am aware that any information given by me in this Section may be investigated and I hereby give my full permission for any such investigation and I fully acknowledge that any misrepresentations or omissions in my responses and information may cause my bid to be rejected.

Bidder's full name and entity status:

Company's Name

Signature, Authorized Representative of Bidder

Title

Date

END

CERTIFICATE OF NON-SUSPENSION OR DEBARMENT

Section 00405

Solicitation Number: _____ (to be filled in by Contractor)

The City of Austin is prohibited from contracting with or making prime or sub-awards to parties that are suspended or debarred or whose principals are suspended or debarred from Federal, State, or City of Austin Contracts. Covered transactions include procurement contracts for goods or services equal to or in excess of \$25,000.00 and all non-procurement transactions. This certification is required for all bidders on all City of Austin Contracts to be awarded with values equal to or in excess of \$25,000.00 and all non-procurement transactions.

The CONTRACTOR hereby certifies that its firm and its principals are not currently suspended or debarred from bidding on any Federal, State, or City of Austin Contracts.

Contractor's full name and entity status:

(Name/Signature of Authorized Official)

Title

Date

END

STATEMENT OF BIDDER'S SAFETY EXPERIENCE

Section 00410

BIDDER'S SAFETY EXPERIENCE (To Be Submitted Post-Bid)

Solicitation Number: _____ (to be filled in by Contractor)

NAME OF BIDDER: _____

Pursuant to Section 252.0435 of the Local Government Code, the OWNER will consider the safety records of bidders prior to awarding a City contract. Upon request, a bidder is required to provide information to demonstrate the safety and health performance of their company. The information obtained from a bidder or from other sources will be used to determine the bidder's safety record, and will not automatically be used to exclude the bidder from selection for this or any future procurement. The OWNER will consider the responses to this Section 00410 document separately when making a discretionary determination of whether to disqualify a bidder, and may also consider the cumulative impact of the information generated by the bidder's responses in making the determination. Bidders are responsible for reviewing the safety records of proposed subcontractors.

Upon notification from the OWNER, the three (3) apparent low bidders are required to provide the following information:

WORKERS' COMPENSATION EXPERIENCE MODIFICATION RATE DATA			
Provide bidder's Workers' Compensation Experience Modification Rate (EMR) Data using the loss experience that occurred within the past five years. Attach bidder's NCCI workers compensation experience rating sheets for the past five (5) years.		Policy Year	EMR
	Current EMR:		
	1 Year Ago:		
	2 Years Ago:		
	3 Years Ago:		
	4 Years Ago:		
Bidder's initialing here certifies that bidder does not have an EMR: _____ <i>(Submit a copy of bidder's Insurance Loss Run Reports for the last five years if bidder does not have an EMR.)</i>			
Bidder may include additional information explaining any circumstances that may have affected the company's EMR rate.			
Evaluation: Bidders with a 5-year EMR average that exceeds the 5-year industry average EMR by more than 25% may be deemed non-responsive.			

REGULATORY NOTICE AND CITATION HISTORY DATA	
<p>Provide bidder's information regarding regulatory OSHA and/or Environmental Protection Agency Notices and Citations as follows:</p> <p>Describe federal, state, city/municipal or county OSHA notices of noncompliance or citations issued to or received by the bidder within the past three years or any notices from any environmental protection agency, including any notices or citations from any state agency or local government responsible for enforcing environmental protection or other health and safety laws or regulations of any state of the United States, received within the past three years.</p>	<p>Provide a description of each on the OSHA/EPA form on the following page to include:</p> <ul style="list-style-type: none"> • Date of Citation/Notices • Issuing agency • Standard cited • Level of violation (i.e. serious, willful) • Dates and brief description(s) of the event(s) • Brief description(s) of actions taken to correct the violation(s) • Current status (Open, Closed, Contested) • If Closed, date of Closure • If Open, estimated date of Closure
<p>Bidder may include additional information explaining any related circumstances.</p>	
<p>Evaluation: Information may be verified by referring to respective agency. More than two serious or more than one willful or repeated violation (investigation completed) within the past three years may deem the Bidder non-responsive.</p>	

OSHA and/or Environmental Protection Agency Notices Within Past Three Years						
Date of Citation or Notice	Issuing Agency	Violation Level (i.e. serious, willful)	Brief description of event	Brief description of actions taken to correct violation(s)	Current Status (Open, Closed, Contested)	Closed Date, or if Open, estimated Close Date

INJURY AND ILLNESS INCIDENCE RATE DATA	
Provide bidder's *Total Case Incidence Rate(s) (TCIR) for the 3 most recent calendar years.	TCIR Rates: Current Rate: _____ 1 Year Ago: _____ 2 Years Ago: _____
Attach bidder's OSHA 300 and 300A logs for the past 3 years.	
DAYS AWAY, RESTRICTED, AND TRANSFER RATE DATA	
Provide bidder's **Days Away, Restricted, and Transfer Rate(s) (DART) for the three most recent calendar years.	DART Rates: Current Rate: _____ 1 Year Ago: _____ 2 Years Ago: _____
Bidder may include additional information explaining any circumstances that may have affected the submitted rates and/or their associated three year trends.	
Evaluation: Rates will be compared to the most recently published Bureau of Labor Statistics (BLS) national average for the Standard Industrial Classification code (SIC) or North American Industrial Classification Systems (NAICS) code for the construction industry. For consideration of another code within the construction industry, the Bidder must provide the code and justification. Bidders with a 3-year TCIR or DART average that exceeds the 3-year TCIR or DART industry average may be deemed non-responsive.	

**TCIR – To calculate the calendar year TCIR, determine the total number of all recordable injuries and illnesses that occurred during the year in question, divide that total by the total number of hours worked by all employees during that year, and multiply the result by 200,000.*

*** DART – To calculate the calendar year DART, determine the total number of recordable injuries and illnesses resulting in days away from work, restricted work activity, and/or job transfer that occurred during the year in question, divide that total by the total number of hours worked by all employees during that year, and multiply the result by 200,000.*

ACKNOWLEDGEMENT

THE STATE OF TEXAS

COUNTY OF TRAVIS

I certify that my responses and the information I have provided are true and correct to the best of my personal knowledge and belief and I have made no willful misrepresentations in this, or withheld any relevant information in my statements. I am aware that any information given by me in response to this Section 00410 may be investigated and I hereby give my full permission for any such investigations, and I fully acknowledge that any misrepresentations or omissions in my responses and information may cause my bid to be rejected or cause any contract based on misrepresentations to be cancelled.

Contractor's full name and entity status:

(Name/Signature of Authorized Official)

Title

Date

END

AFFIDAVIT - PROHIBITED ACTIVITIES

Section 00440

**BIDDER'S AFFIDAVIT OF NON-COLLUSION, NON-CONFLICT OF INTEREST
AND ANTI-LOBBYING**

Solicitation Number: _____ (to be filled in by Contractor)

State of Texas

County of Travis

The undersigned "Affiant" is a duly authorized representative of the bidder for the purpose of making this Affidavit, and, after being first duly sworn, has deposed and stated and hereby deposes and states, to the best of his or her personal knowledge and belief as follows:

The term "**Bidder**", as used herein, includes the individual or business entity submitting the bid and for the purpose of this Affidavit includes the directors, officers, partners, managers, members, principals, owners, agents, representatives, employees, other parties in interest of the Bidder, and anyone or any entity acting for or on behalf of the Bidder, including a subcontractor in connection with this bid.

The terms "**City**" and "**Owner**" are synonymous.

1. **Anti-Collusion Statement.** The Bidder has not and will not in any way directly or indirectly:
 - a. colluded, conspired, or agreed with any other person, firm, corporation, bidder or potential bidder to the amount of this bid or the terms or conditions of this bid.
 - b. paid or agreed to pay any other person, firm, corporation bidder or potential bidder any money or anything of value in return for assistance in procuring or attempting to procure a contract or in return for establishing the prices in the attached bid or the bid of any other bidder.
2. **Preparation of Invitation for Bid and Contract Documents.** The Bidder has not received any compensation or a promise of compensation for participating in the preparation or development of the underlying bid or contract documents., In addition, the Bidder has not otherwise participated in the preparation or development of the underlying bid or contract documents, except to the extent of any comments or questions and responses in the bidding process, which are available to all bidders, so as to have an unfair advantage over other bidders, provided that the Bidder may have provided relevant product or process information to a consultant in the normal course of its business.
3. **Participation in Decision Making Process.** The Bidder has not participated in the evaluation of bids or proposals or other decision making process for this solicitation, and, if Bidder is awarded a contract hereunder, no individual, agent, representative, consultant or sub contractor or consultant associated with Bidder, who may have been involved in the evaluation or other decision making process for this solicitation, will have any direct or indirect financial interest in the Contract, provided that the Bidder may have provided relevant product or process information to a consultant in the normal course of its business.

4. **Present Knowledge.** Bidder is not presently aware of any potential or actual conflicts of interest regarding this solicitation, which either enabled Bidder to obtain an advantage over other bidders or would prevent Bidder from advancing the best interests of OWNER in the course of the performance of the Contract.
5. **City Code.** As provided in Sections 2-7-61 through 2-7-65 of the City Code, no individual with a substantial interest in Bidder is a City official or employee or is related to any City official or employee within the first or second degree of consanguinity or affinity.
6. **Chapter 176 Conflict of Interest Disclosure.** In accordance with Chapter 176 of the Texas Local Government Code, the Bidder:
 - a. does not have an employment or other business relationship with any local government officer of OWNER or a family member of that officer that results in the officer or family member receiving taxable income;
 - b. has not given a local government officer of OWNER one or more gifts, other than gifts of food lodging transportation or entertainment accepted as a guest, that have an aggregate value of more than \$100 in the twelve month period preceding the date the officer becomes aware of the execution of the Contract or that OWNER is considering doing business with the Bidder; and
 - c. does not have a family relationship with a local government officer of OWNER in the third degree of consanguinity or the second degree of affinity.

As required by Chapter 176, Bidder must file the Conflicts of Interest Questionnaire with the Purchasing Department no later than the seventh business day after the commencement of contract discussions or negotiations with the City or the submission of a Bid, response to a request for proposals, or other writing related to a potential contract with OWNER. The questionnaire must be updated not later than the seventh day after the date of an event that would make a statement in the questionnaire inaccurate or incomplete. There are statutory penalties for failure to comply with Chapter 176.

7. **Anti-Lobbying Ordinance.** On June 14, 2018, the Austin City Council adopted Ordinance No. 20180614-056 replacing Chapter 2.7, Article 6 of the City Code relating to Anti-Lobbying and Procurement. The policy defined in this Code applies to Solicitations for goods and/or services requiring City Council approval under City Charter Article VII, Section 15 (Purchase Procedures). The City requires Offerors submitting Offers on this Solicitation to certify that the Offeror has not in any way directly or indirectly had communication restricted in the ordinance section 2-7-104 during the No-Lobbying Period as defined in the Ordinance. The text of the City Ordinance is included in Section 00100 of this solicitation and is also posted on the Internet at:

https://assets.austintexas.gov/purchase/downloads/New_ALO_Ordinance_No_20180614-056.pdf

8. **Texas Government Code Chapter 2270.** The City is prohibited from contracting with any "company", for goods and services unless the following verification is included in this contract.

If CONTRACTOR qualifies as a "company", then CONTRACTOR verifies that it: (a) does not "boycott Israel"; and (b) will not "boycott Israel" during the term of this contract. For the purposes of this Section only, the terms "company" and "boycott Israel" have the meaning assigned by Texas Government Code Section 2270.001. CONTRACTOR's

Bidding Requirements, Contract Forms and Conditions of the Contract

obligations under this Section, if any exist, will automatically cease or be reduced to the extent that the requirements of Texas Government Code Chapter 2270 are subsequently repealed, reduced, or declared unenforceable or invalid in whole or in part by any court or tribunal of competent jurisdiction or by the Texas Attorney General, without any further impact on the validity or continuity of this contract.

If the Bidder cannot affirmatively swear and subscribe to the forgoing statements, the Bidder shall provide a detailed written explanation in the space provided below or, as necessary, on separate pages to be annexed hereto.

Contractor's full name and entity status:

(Name/Signature of Authorized Official)

Title

Date

Subscribed and sworn to before me this ____ day of _____, 20__.

Notary Public

My Commission Expires _____

BIDDER'S EXPLANATION:

END

NONRESIDENT BIDDER PROVISIONS

Section 00475

Solicitation Number: _____ (to be filled in by Contractor)

Bidder must answer the following questions in accordance with Vernon's Texas Statutes and Codes Annotated Government Code § 2252.002, as amended:

- A. Is the bidder that is making and submitting this bid a "resident bidder" or a "non-resident bidder"?

Answer: _____

(1) Texas Resident Bidder - A bidder whose principal place of business is in Texas and includes a Contractor whose ultimate parent company or majority owner has its principal place of business in Texas.

(2) Nonresident Bidder - A bidder who is not a Texas Resident Bidder.

- B. If the Bidder is a "Nonresident Bidder", does the state, in which the Nonresident Bidder's principal place of business is located, have a law requiring a Nonresident Bidder of that state to bid a certain amount or percentage under the bid of a Resident Bidder of that state in order for the nonresident bidder of that state to be awarded a contract on his bid in such state?

Answer: ☐ Yes ☐ No Which state? _____

If the answer to Question B is "yes", then what amount or percentage must a Texas Resident Bidder bid under the bid price of a Resident Bidder of that state in order to be awarded a contract on such bid in said state?

Answer: _____

Contractor's full name and entity status:

(Name/Signature of Authorized Official)

Title

Date

END

AGREEMENT SECTION

Section 00500

**STATE OF TEXAS
COUNTY OF TRAVIS**

THIS AGREEMENT is made and entered into by and between the City of Austin, Texas, a municipal corporation, organized and existing under laws of State of Texas, acting through its City Manager or other duly authorized designee, hereinafter referred to as the "OWNER," and _____, of the City of _____, County of _____, and State of _____, hereinafter referred to as the "CONTRACTOR."

In consideration of the promises, performances, payments and agreements set forth herein CONTRACTOR hereby agrees to commence and complete the following Project:

_____ and all Work in accordance with the Project Manual, Drawings and Addenda, which are incorporated herein by reference and made a part hereof and which have been prepared by _____ and approved by OWNER, and OWNER agrees to pay the CONTRACTOR the total amount of:

\$	
(Figures)	(Words)

The CONTRACTOR hereby agrees to commence work on the date specified in the written "Notice to Proceed" to be issued by the OWNER and to substantially complete construction of the improvements, as required by the Project Manual, Drawings and Addenda for the Work within One Hundred (100) Calendar Days. The CONTRACTOR further agrees to reach Final Completion within Thirty (30) Calendar Days after Substantial Completion as required by the Project Manual, Drawings and Addenda for the work. Waiver of any breach of this Contract shall not constitute waiver of any subsequent breach.

In consideration of the award and execution of this Contract, and in consideration of the waiver of its right to attorney's fees by the OWNER, the CONTRACTOR knowingly and intentionally waives its right to attorney's fees under Section 271.153 of the Texas Local Government Code in any administrative proceeding, alternative dispute resolution proceeding, or litigation arising out of or connected to this Contract.

OWNER agrees to pay CONTRACTOR from available funds for performance of the Contract in accordance with the Bid and the provisions of the Contract Documents, subject to additions and deductions, as provided therein.

Bidding Requirements, Contract Forms and Conditions of the Contract

The OWNER's payment obligations are payable only and solely from funds available for the purposes of this Agreement.

Although drafted by OWNER, this Agreement, in event of any disputes over its meaning or application, shall be interpreted fairly and reasonably, and neither more strongly for nor against either party.

This Agreement is executed to be effective upon the date of the last party to sign.

OWNER

By: _____
(Signature)

Date

Title of Signatory

§ CONTRACTOR

§

By: _____
(Signature)

§

Date

§

Printed Name of Signatory

§

§

Title of Signatory, Authorized Rep

§

§

§ ATTEST (as applicable)

§

§

***Corporate Secretary of Corporate Bidder or Corporate General Partner**

*Copy of Corporate Resolution and minutes with certificate of officer of CONTRACTOR as to authority of signatory to bind CONTRACTOR is to be signed, dated no earlier than one week before the date of award of Contract, and attached to this document.

END

Bidding Requirements, Contract Forms and Conditions of the Contract

PERFORMANCE BOND

Section 00610

STATE OF TEXAS

COUNTY OF _____

Bond No. _____

C.I.P. ID No. CLMC725

Project Name _____

Know All Men By These Presents: That _____ of the City of _____, County of _____, and State of _____, as Principal, and _____, a solvent company authorized under laws of the State of Texas to act as surety on bonds for principals, are held and firmly bound unto _____ (OWNER), in the penal sum of _____ U.S. Dollars (\$ _____ U.S.) for payment whereof, well and truly to be made, said Principal and Surety bind themselves and their heirs, administrators, executors, successors and assigns, jointly and severally, by these presents:

Conditions of this Bond are such that, whereas, Principal has entered into a certain written contract with OWNER, dated the _____ day of _____, which Agreement is hereby referred to and made a part hereof as fully and to the same extent as if copied at length herein.

Now, therefore, the condition of this obligation is such, that if said Principal shall faithfully perform said Agreement and shall in all respects duly and faithfully observe and perform all and singular covenants, conditions and agreements in and by said contract agreed and covenanted by Principal to be observed and performed, and according to true intent and meaning of said Agreement hereto annexed, then this obligation shall be void; otherwise to remain in full force and effect. If OWNER notifies Principal and Surety the OWNER is considering declaring Principal in default, Surety agrees to meet with OWNER and Principal no later than fifteen days after receipt of such notice to discuss methods of performing the Work of the Contract.

Provided, however, that this bond is executed pursuant to provisions of Chapter 2253, Texas Government Code as amended and all liabilities on this bond shall be determined in accordance with provisions of said Article to same extent as if it were copied at length herein.

Surety, for value received, stipulates and agrees that no change in Contract Time or Contract Amount shall in anywise affect its obligation on this bond, and it does hereby waive notice of any such change in Contract Time or Contract Amount.

In witness whereof, said Principal and Surety have signed and sealed this instrument this _____ day of _____.

Principal

Surety

By _____
(Signature)

By _____
(Signature)

Title_____

Title_____

Address_____

Address_____

Telephone_____ Fax_____

E-Mail Address _____

Name and address of Resident Agent of Surety:

Note: Bond shall be issued by a solvent Surety company authorized to do business in Texas, and shall meet any other requirements established by law or by OWNER pursuant to applicable law. A copy of surety agent's "Power of Attorney" must be attached hereto.

END

Bidding Requirements, Contract Forms and Conditions of the Contract

PAYMENT BOND

Section 00620

STATE OF TEXAS

COUNTY OF _____

Bond No. _____

C.I.P. ID No. CLMC725

Project Name: _____

Know All Men By These Presents: That _____ of the City of _____, County of _____, and State of _____ as Principal, and _____, a solvent company authorized under laws of the State of Texas to act as surety on bonds for principals, are held and firmly bound unto _____ (OWNER), and all Subcontractors, workers, laborers, mechanics and suppliers as their interests may appear, all of whom shall have right to sue upon this bond in the penal sum of _____ U.S. Dollars (\$ _____ U.S.) for payment whereof, well and truly to be made, said Principal and Surety bind themselves and their heirs, administrators, executors, successors and assigns, jointly and severally, by these presents:

Conditions of this Bond are such that, whereas, Principal has entered into a certain written contract with OWNER, dated the _____ day of _____, _____, which Agreement is hereby referred to and made a part hereof as fully and to the same extent as if copied at length herein.

Now, therefore, condition of this obligation is such, that if the said Principal shall well and truly pay all Subcontractors, workers, laborers, mechanics, and suppliers, all monies to them owing by said Principals for subcontracts, work, labor, equipment, supplies and materials done and furnished for the construction of improvement of said Agreement, then this obligation shall be and become null and void; otherwise to remain in full force and effect.

Provided, however, that this bond is executed pursuant to provisions of Chapter 2253, Texas Government Code as amended and all liabilities on this bond shall be determined in accordance with provisions of said Article to same extent as if it were copied at length herein.

Surety, for value received, stipulates and agrees that no change in Contract Time or Contract Amount shall in anywise affect its obligation on this bond, and it does hereby waive notice of any such change in Contract Time or Contract Amount.

In witness whereof, said Principal and Surety have signed and sealed this instrument this _____ day of _____, _____.

Principal

Surety

By _____
(Signature)

By _____
(Signature)

Bidding Requirements, Contract Forms and Conditions of the Contract

Title_____

Title_____

Address_____

Address_____

Telephone_____Fax_____

E-Mail Address _____

Name and address of Resident Agent of Surety:

Note: Bond shall be issued by a solvent Surety company authorized to do business in Texas, and shall meet any other requirements established by law or by OWNER pursuant to applicable law. A copy of surety agent's "Power of Attorney" must be attached hereto.

END

NON-DISCRIMINATION AND NON-RETALIATION CERTIFICATE

Section 00630

Solicitation Number: _____ (to be filled in by Contractor)

City of Austin, Texas
Equal Employment/Fair Housing Office

To: City of Austin, Texas, ("OWNER")

I hereby certify that our firm conforms to the Code of the City of Austin Section 5-4-2 as reiterated below:

Chapter 5-4. Discrimination in Employment by City Contractors.

Sec. 4-2 Discriminatory Employment Practices Prohibited. (B) As an Equal Employment Opportunity (EEO) employer, the Contractor will conduct its personnel activities in accordance with established federal, state and local EEO laws and regulations and agrees:

- (1) Not to engage in any discriminatory employment practice defined in this chapter.
- (2) To take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without discrimination being practiced against them as defined in this chapter. Such affirmative action shall include, but not be limited to: all aspects of employment, including hiring, placement, upgrading, transfer, demotion, recruitment, recruitment advertising; selection for training and apprenticeship, rates of pay or other forms of compensation, and layoff or termination.
- (3) To post in conspicuous places, available to employees and applicants for employment, notices to be provided by OWNER setting forth the provisions of this chapter.
- (4) To state in all solicitations or advertisements for employees placed by or on behalf of Contractor, that all qualified applicants will receive consideration for employment without regard to race, creed, color, religion, national origin, sexual orientation, gender identity, disability, veteran status, sex or age.
- (5) To obtain a written statement from any labor union or labor organization furnishing labor or service to Contractors in which said union or organization has agreed not to engage in any discriminatory employment practices as defined in this chapter and to take affirmative action to implement policies and provisions of this chapter.
- (6) To cooperate fully with OWNER's Equal Employment/Fair Housing Office in connection with any investigation or conciliation effort of said Equal Employment/Fair Housing Office to ensure that the purpose of the provisions against discriminatory employment practices are being carried out.
- (7) To require compliance with provisions of this chapter by all subcontractors having fifteen or more employees who hold any subcontract providing for expenditure of \$2,000.00 or more in connection with any contract with OWNER subject to the terms of this chapter.

For the purposes of this Bid and any resulting Contract, Contractor adopts the provisions of the City's Minimum Standard Nondiscrimination and Non-Retaliation Policy as set forth below.

City of Austin

Minimum Standard Non-Discrimination and Non-Retaliation in Employment Policy

As an Equal Employment Opportunity (EEO) employer, the Contractor will conduct its personnel activities in accordance with established federal, state and local EEO laws and regulations.

The Contractor will not discriminate against any applicant or employee based on race, creed, color, national origin, sex, age, religion, veteran status, gender identity, disability, or sexual orientation. This policy covers all aspects of employment, including hiring, placement, upgrading, transfer, demotion, recruitment, recruitment advertising, selection for training and apprenticeship, rates of pay or other forms of compensation, and layoff or termination.

The Contractor agrees to prohibit retaliation, discharge or otherwise discrimination against any employee or applicant for employment who has inquired about, discussed or disclosed their compensation.

Further, employees who experience discrimination, sexual harassment, or another form of harassment should immediately report it to their supervisor. If this is not a suitable avenue for addressing their complaint, employees are advised to contact another member of management or their human resources representative. No employee shall be discriminated against, harassed, intimidated, nor suffer any reprisal as a result of reporting a violation of this policy. Furthermore, any employee, supervisor, or manager who becomes aware of any such discrimination or harassment should immediately report it to executive management or the human resources office to ensure that such conduct does not continue.

Contractor agrees that to the extent of any inconsistency, omission, or conflict with its current non-discrimination and non-retaliation employment policy, the Contractor has expressly adopted the provisions of the City's Minimum Non-Discrimination Policy contained in Section 5-4-2 of the City Code as set forth above and the City's Non-Retaliation Policy, as the Contractor's Non-Discrimination and Non-Retaliation Policy or as an amendment to such Policy and such provisions are intended to not only supplement the Contractor's policy, but will also supersede the Contractor's policy to the extent of any conflict.

*UPON CONTRACT AWARD, THE CONTRACTOR SHALL PROVIDE A COPY TO THE CITY OF THE CONTRACTOR'S NON-DISCRIMINATION AND NON-RETALIATION POLICY ON COMPANY LETTERHEAD, WHICH CONFORMS IN FORM, SCOPE, AND CONTENT TO THE CITY'S MINIMUM NON-DISCRIMINATION AND NON-RETALIATION POLICY, AS SET FORTH HEREIN, **OR** THIS NON-DISCRIMINATION AND NON-RETALIATION POLICY, WHICH HAS BEEN ADOPTED BY THE CONTRACTOR FOR ALL PURPOSES (THE FORM OF WHICH HAS BEEN APPROVED BY THE CITY'S EQUAL EMPLOYMENT/FAIR HOUSING OFFICE), WILL BE CONSIDERED THE CONTRACTOR'S NON-DISCRIMINATION AND NON-RETALIATION POLICY WITHOUT THE REQUIREMENT OF A SEPARATE SUBMITTAL.*

(<http://austintexas.gov/page/bid-docs>).

Sanctions:

Our firm understands that non-compliance with Chapter 5-4 may result in sanctions, including termination of the contract and suspension or debarment from participation in future City contracts until deemed compliant with the requirements of Chapter 5-4.

Bidding Requirements, Contract Forms and Conditions of the Contract

Term:

The Contractor agrees that this Section 00630 Non-Discrimination and Non-Retaliation Certificate or the Contractor's separate conforming policy, which the Contractor has executed and filed with the Owner, will remain in force and effect for one year from the date of filing. The Contractor further agrees that, in consideration of the receipt of continued Contract payments, the Contractor's Non-Discrimination Policy will automatically renew from year-to-year for the term of the underlying Contract.

Dated this _____ day of _____, _____.

Contractor's full name and entity status:

(Name/Signature of Authorized Official)

Title

END

TITLE VI ASSURANCES APPENDIX A

Section 00631

Solicitation Number: _____ (to be filled in by Contractor)

During the performance of this contract, the contractor, for itself, its assignees and successors in interest (hereinafter referred to as the "contractor") agrees as follows:

1. Compliance with Regulations: The contractor (hereinafter includes consultants) will comply with the Acts and the Regulations relative to Nondiscrimination in Federally-assisted programs of the U.S. Department of Transportation, the Federal Highway Administration, as they may be amended from time to time, which are herein incorporated by reference and made a part of this contract.
2. Nondiscrimination: The contractor, with regard to the work performed by it during the contract, will not discriminate on the grounds of race, color, or national origin in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The contractor will not participate either directly or indirectly in the discrimination prohibited by the Acts and the Regulations, including employment practices when the contract covers any activity, project, or program set forth in Appendix B of 49 C.F.R. part 21.
3. Solicitations for Subcontracts, Including Procurements of Materials and Equipment: In all solicitations, either by competitive bidding or negotiation made by the contract for work to be performed under a subcontract, including procurements of materials or leases of equipment, each potential subcontractor or supplier shall be notified by the contractor of the contractor's obligations under this contract and the Acts and the Regulations relative to Nondiscrimination on the grounds of race, color, or national origin.
4. Information and Reports: The contractor shall provide all information and reports required by the Acts, the Regulations, and directives issued pursuant thereto and will permit access to its book, records, accounts, other sources of information, and its facilities as may be determined by the Recipient or the Federal Highway Administration to be pertinent to ascertain compliance with such Acts, Regulations, and instructions. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish this information the contractor will so certify to the Recipient, or the Federal Highway Administration, as appropriate, and will set forth what efforts it has made to obtain the information.
5. Sanctions for Noncompliance: In the event of the contractor's noncompliance with the Nondiscrimination provisions of this contract, the Recipient will impose such contract sanctions as it or the Federal Highway Administration may determine to be appropriate, including, but not limited to:
 - (a) withholding of payments to the contractor under the contract until the contractor complies, and or
 - (b) cancelling, terminating or suspending a contract, in whole or in part.
6. Incorporation of Provisions: The contractor will include the provisions of paragraphs one through six in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Acts, the Regulations and directives issued pursuant thereto. The contractor will take action with respect to any subcontract or procurement as the Recipient or the Federal Highway Administration may direct as a means of enforcing such provisions including sanctions for non-compliance: Provided, that if a

Bidding Requirements, Contract Forms and Conditions of the Contract

contractor becomes involved in, or is threatened with, litigation with a subcontractor or supplier because of such direction, the contractor may request the Recipient to enter into any litigation to protect the interests of the Recipient. In addition, the contractor may request the United States to enter into the litigation to protect the interests of the United States.

(Source: DOT 1050.2A, Updated DOT Standard Title VI Assurances and Non-Discrimination Provisions 10/22/2013. Must be inserted into every contract/agreement regardless of funding sources.)

Contractor's full name and entity status:

(Name/Signature of Authorized Official)

Title

Date

END

TITLE VI ASSURANCES APPENDIX E

Section 00632

Solicitation Number: _____ (to be filled in by Contractor)

During the performance of this contract, the contractor (hereinafter includes consultants), for itself, its assignees, and successors in interest (hereinafter referred to as the "contractor") agrees to comply with the following nondiscrimination statutes and authorities; including but not limited to:

Pertinent Nondiscrimination Authorities:

1. Title VI of the Civil Rights Act of 1964 (42 U.S.C. § 2000d et seq., 78 stat. 252), (prohibits discrimination on the basis of race, color, national origin); and 49 C.F.R. Part 21.
2. The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, (42 U.S.C. § 4601), (prohibits unfair treatment of persons displaced or whose property has been acquired because of Federal or Federal-aid programs and projects);
3. Federal-Aid Highway Act of 1973, (23 U.S.C. § 324 et seq.), (prohibits discrimination on the basis of sex);
4. Section 504 of the Rehabilitation Act of 1973, (29 U.S.C. § 794 et seq.), as amended, (prohibits discrimination on the basis of disability); and 49 C.F.R. Part 27;
5. The Age Discrimination Act of 1975, as amended, (42 U.S.C. § 6101 et seq.), (prohibits discrimination on the basis of age);
6. Airport and Airway Improvement Act of 1982, (49 U.S.C. § 471, Section 47123), as amended, (prohibits discrimination based on race, creed, color, national origin, or sex);
7. The Civil Rights Restoration Act of 1987, (PL 100-209), (Broadened the scope, coverage and applicability of Title VI of the Civil Rights Act of 1964, The Age Discrimination Act of 1975 and Section 504 of the Rehabilitation Act of 1973, by expanding the definition of the terms "programs or activities" to include all of the programs or activities of the Federal-aid recipients, subrecipients and contractors, whether such programs or activities are Federally funded or not);
8. Titles II and III of the Americans with Disabilities Act, which prohibit discrimination on the basis of disability in the operation of public entities, public and private transportation systems, places of public accommodation, and certain testing entities (42 U.S.C. §§ 12131-12189) as implemented by Department of Transportation regulations at 49 C.F.R. parts 37 and 38;
9. The Federal Aviation Administration's Nondiscrimination statute (49 U.S.C. § 47123) (prohibits discrimination on the basis of race, color, national origin, and sex);
10. Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, which ensures nondiscrimination against minority populations by discouraging programs, policies, and activities with disproportionately high and adverse human health or environmental effects on minority and low-income populations;

Bidding Requirements, Contract Forms and Conditions of the Contract

11. Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency, and resulting agency guidance, national origin discrimination includes discrimination because of limited English proficiency (LEP).
12. To ensure compliance with Title VI, you must take reasonable steps to ensure that LEP persons have meaningful access to your programs (70 Fed. Reg. at 74087 to 74100);
13. Title IX of the Education Amendments of 1972, as amended, which prohibits you from discriminating because of sex in education programs or activities (20 U.S.C. 1681 et seq).

(Source: DOT 1050.2A, Updated DOT Standard Title VI Assurances and Non-Discrimination Provisions 10/22/2013. Must be inserted into every contract/agreement regardless of funding sources.)

Contractor's full name and entity status:

(Name/Signature of Authorized Official)

Title

Date

END

Bidding Requirements, Contract Forms and Conditions of the Contract
CERTIFICATE OF INSURANCE
Section 00650

This Certificate shall be completed by a licensed insurance agent:

Name and Address of Agency:

Phone: _____ / _____

Name and Address of Insured:

Phone: _____ / _____

Prime or Sub-Contractor?: _____

Name of Prime Contractor, if different from Insured: _____

City of Austin Reference:

Project Name:

C.I.P. No.:

Project Location:

Managing Dept.:

Contract No.:

Project Mgr.:

Insurers Affording Coverages:

Insurer A:

Insurer B:

Insurer C:

Insurer D:

INSR LTR	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YYYY)	POLICY EXPIRATION DATE (MM/DD/YYYY)	LIMITS OF LIABILITY	
	Commercial General Liability Policy As defined in the Policy, does the Policy provide:				Each Occurrence	\$
					General Aggregate	\$
	<input type="checkbox"/> Yes <input type="checkbox"/> No -- Completed Operations/Products				Completed Operations /Products Aggregate	\$
	<input type="checkbox"/> Yes <input type="checkbox"/> No -- Contractual Liability				Personal & Advertising Injury	\$
	<input type="checkbox"/> Yes <input type="checkbox"/> No -- Explosion				Deductible or Self Insured Retention	\$
	<input type="checkbox"/> Yes <input type="checkbox"/> No -- Collapse					
	<input type="checkbox"/> Yes <input type="checkbox"/> No -- Underground					
	<input type="checkbox"/> Yes <input type="checkbox"/> No -- Contractors/ Subcontractors Work					
	<input type="checkbox"/> Yes <input type="checkbox"/> No -- Aggregate Limits per Project Form CG 2503					
	<input type="checkbox"/> Yes <input type="checkbox"/> No -- Additional Insured Form – CG 2010 and CG2037					
	<input type="checkbox"/> Yes <input type="checkbox"/> No -- 30 Day Notice of Cancellation Form – CG 0205					
	<input type="checkbox"/> Yes <input type="checkbox"/> No -- Waiver of Subrogation Form – CG 2404					
	Pollution/ Environmental Impairment Policy				Occurrence	\$
					Aggregate	\$

INSR LTR	TYPE OF INSURANCE	POLICY NUMBER	POLICY EF- FECTIVE DATE (MM/DD/YYYY)	POLICY EXPI- RATION DATE (MM/DD/YYYY)	LIMITS OF LIABILITY	
	Auto Liability Policy As defined in the Policy, does the Policy provide:				CSL	\$
	<input type="checkbox"/> Yes <input type="checkbox"/> No -- Any Auto				Bodily Injury (Per Accident)	\$
	<input type="checkbox"/> Yes <input type="checkbox"/> No -- All Owned Autos				Bodily Injury (Per Person)	\$
	<input type="checkbox"/> Yes <input type="checkbox"/> No -- Non-Owned Autos				Property Damage (Per Accident)	\$
	<input type="checkbox"/> Yes <input type="checkbox"/> No -- Hired Autos					
	<input type="checkbox"/> Yes <input type="checkbox"/> No -- Waiver of Subrogation – CA0444					
	<input type="checkbox"/> Yes <input type="checkbox"/> No -- 30 Day Notice of Cancellation – CA0244					
	<input type="checkbox"/> Yes <input type="checkbox"/> No -- Additional Insured – CA2048					
	<input type="checkbox"/> Yes <input type="checkbox"/> No -- MCS 90					
	Excess Liability <input type="checkbox"/> Umbrella Form				Occurrence	\$
	<input type="checkbox"/> Excess Liability Follow Form				Aggregate	\$
	Workers Compensation and Employers Liability As defined in the Policy, does the Policy provide:				<input type="checkbox"/> Statutory	
	<input type="checkbox"/> Yes <input type="checkbox"/> No -- Waiver of Subrogation – WC420304				Each Accident	\$
	<input type="checkbox"/> Yes <input type="checkbox"/> No -- 30 Day Notice of Cancellation – WC420601				Disease – Policy Limit	\$
					Disease – Each Employee	\$
	Is a Builders Risk or Installation Insurance Policy provided? <input type="checkbox"/> Yes <input type="checkbox"/> No					\$
	<input type="checkbox"/> Yes <input type="checkbox"/> No -- Is the City shown as loss payee/mortgagee?					
	Professional Liability As defined in the Policy, does the Policy provide:				Each Claim	\$
	<input type="checkbox"/> Yes <input type="checkbox"/> No -- 30 Day Notice of Cancellation				Deductible or Self Insured Retention	\$
	Retroactive Date: _____					

This form is for informational purposes only and certifies that policies of insurance listed above have been issued to insured named above and are in force at this time. Notwithstanding any requirements, term or condition of any contract or other document with respect to which this certificate may be issued or may pertain, insurance afforded by policies described herein is subject to all terms, exclusions and conditions of such policies.

CERTIFICATE HOLDER:

DATE ISSUED: _____

City of Austin
Capital Contracting Office
P.O. Box 1088
Austin, Texas 78767

AUTHORIZED REPRESENTATIVE SIGNATURE
Licensed Insurance Agent

END

Bidding Requirements, Contract Forms and Conditions of the Contract
TEXAS SALES AND USE TAX EXEMPTION CERTIFICATE
Section 00670

City of Austin, Texas
P.O. Box 1088
Austin, Texas 78767

CONTRACTOR/PURCHASER: _____

Street Address: _____

City, State, ZIP Code: _____

PROJECT: _____

Project Manager: _____

FDU No.: _____

CIP ID No.: _____

Description of items to be purchased or as described on the attached order or invoice:

The Contractor may purchase all labor, materials, supplies, and equipment to be incorporated in the City of Austin realty, including easements, or completely consumed at the Project jobsite and services required by or integral to the performance of the contract for the Project without paying sales or use tax in accordance with State Comptroller Rule 3.291.

Contractor/Purchaser claims this exemption for the following reason: This contract is to be performed for the City of Austin, a tax exempt entity under the Texas Tax Code.

I understand that I will be liable for payment of sales and use taxes which may become due for failure to comply with the provisions of the Tax Code. I also understand that it is a criminal offense to give an exemption certificate to the contractor for taxable items that I know, at the time of purchase, will be used in a manner other than that expressed in this certificate and depending on the amount of tax evaded, the offense may range from a Class B misdemeanor to a felony of the second degree.

City of Austin, Texas	Title	Date
 ELAINE HART	DEPUTY CITY MANGER/CHIEF FINANCIAL OFFICER	January 11, 2019

CONTRACTOR/PURCHASER: _____

By: _____

Title: _____

Date: _____

NOTE: This certificate cannot be issued for the purchase, lease, or rental of a motor vehicle.

THIS CERTIFICATE DOES NOT REQUIRE A NUMBER TO BE VALID. Sales and Use Tax "Exemption Numbers" or "Tax Exempt" Numbers do not exist. This certificate should be furnished to the supplier. Do not send the completed certificate to the Comptroller of Public Accounts.

End

NON-USE OF ASBESTOS AFFIDAVIT (CONTRACTOR PRIOR TO CONSTRUCTION)

Section 00680

**STATE OF TEXAS
COUNTY OF TRAVIS**

BEFORE ME, the undersigned authority, personally appeared the Affiant who, being by me first duly sworn, upon oath deposed and stated:

"My name is _____, hereinafter known as Affiant. "I am over the age of 18 years and I have never been convicted of a crime. I am the _____ of _____ hereinafter known as CONTRACTOR.

"I am fully competent to make this affidavit. I have personal knowledge of the facts set forth below and they are all true and correct.

"WHEREAS CONTRACTOR has submitted a bid to the City of Austin as the Prime CONTRACTOR and anticipates being awarded a contract for the construction of _____ located at _____, Austin, Texas, hereinafter known as Project, for the City of Austin, Texas, hereinafter known as OWNER, and "WHEREAS asbestos in a dust form is a recognized health hazard, and "WHEREAS the OWNER desires not to have any asbestos containing materials used or incorporated into the construction of the Project; "THEREFORE the CONTRACTOR affirms and understands the following:

1. The CONTRACTOR, any person, firm or organization representing or represented by the CONTRACTOR, or employed by the CONTRACTOR shall not cause or allow any material to be incorporated into the construction of the project, or allow any building material on the project site that is an asbestos containing material or any other material defined as containing asbestos by any laws, rules or regulations promulgated by the United States Government, the State of Texas or any governmental organization or agency operating under the authority of either of those entities.
2. Realizing that there might be some materials in which a satisfactory non-asbestos containing material could not be obtained, the Consultant has received prior approval from the OWNER before specifying any such asbestos containing material. Those approved materials are the only asbestos containing materials that are exempt from the above prohibition.
3. The CONTRACTOR certifies and affirms their understanding that if any asbestos containing materials not approved by the City of Austin for inclusion into the Project, are determined, as a result of any inspection and sample analysis performed by an individual(s) and/or firm(s) certified and/or licensed to perform such inspection by the United States Government and/or the State of Texas, to have been incorporated into the construction of the Project, or brought onto the site of the Project, the OWNER shall look to the CONTRACTOR for reimbursement of any and all costs incurred in the removal and/or other abatement of said asbestos containing materials.
4. CONTRACTOR further understands that OWNER shall also look to the CONTRACTOR for any and all damages to OWNER which result from the inability of the OWNER to use any portion or all of the Project due to the incorporation of asbestos containing materials that have not been approved by OWNER.

Bidding Requirements, Contract Forms and Conditions of the Contract

5. CONTRACTOR further understands that OWNER will pursue reimbursement of any said cost and compensation for any said damages from the CONTRACTOR by any and every means within OWNER's right and power.

Signature of Affiant: _____

**STATE OF TEXAS
COUNTY OF TRAVIS**

ON _____, 20____, personally appeared _____ and been duly sworn by me, subscribed to the foregoing affidavit and has stated that the facts stated therein are true and correct.

Notary Public, State of Texas

Printed Name of Notary

My Commission Expires: _____

END

NON-USE OF ASBESTOS AFFIDAVIT (CONTRACTOR AFTER CONSTRUCTION)

Section 00681

**STATE OF TEXAS
COUNTY OF TRAVIS**

BEFORE ME, the undersigned authority, personally appeared the Affiant who, being by me first duly sworn, upon oath deposed and stated:

"My name is _____, hereinafter known as Affiant. "I am over the age of 18 years and I have never been convicted of a crime. I am the _____ of _____ hereinafter known as CONTRACTOR.

"I am fully competent to make this affidavit. I have personal knowledge of the facts set forth below and they are all true and correct.

"WHEREAS CONTRACTOR was awarded a Contract for, and was the Prime CONTRACTOR for the construction of _____ located at _____, Austin, Texas, hereinafter known as Project, for the City of Austin, Texas, hereinafter known as OWNER, and "WHEREAS asbestos in a dust form is a recognized health hazard, and "WHEREAS the OWNER desires not to have any asbestos containing materials used or incorporated into the construction of the Project; "THEREFORE the CONTRACTOR affirms and understands the following:

1. The CONTRACTOR, any person, firm or organization representing or represented by the CONTRACTOR, or employed by the CONTRACTOR has not caused or allowed any material to be incorporated into the construction of the project, or allowed any building material on the project site that is an asbestos containing material or any other material defined as containing asbestos by any laws, rules or regulation promulgated by the United States Government, the State of Texas or any governmental organization or agency operating under the authority of either of those entities.

2. Realizing that there were some materials in which a satisfactory non-asbestos containing material could not be obtained, the Consultant received prior approval from the OWNER before specifying any such asbestos containing material. Those approved materials were the only asbestos containing materials incorporated into the construction of the Project and are listed below, with their locations:

3. The CONTRACTOR certifies and affirms their understanding that if any asbestos containing materials not approved by the City of Austin for inclusion into the Project, are determined, as a result of any inspection and sample analysis performed by an individual(s) and/or firm(s) certified and/or licensed to perform such inspection by the United States Government and/or the State of Texas, to have been incorporated into the construction of the Project, or brought onto the site of the Project, the OWNER shall look to the CONTRACTOR for reimbursement of any and all costs incurred in the removal and/or other abatement of said asbestos containing materials.

4. CONTRACTOR further understands that OWNER shall also look to the CONTRACTOR for any and all damages to OWNER which result from the inability of the OWNER to use any portion or all of the Project due to the incorporation of asbestos containing materials that have not been approved by OWNER.

5. CONTRACTOR further understands that OWNER will pursue reimbursement of any said cost and compensation for any said damages from the CONTRACTOR by any and every means within OWNER's right and power.

Signature of Affiant: _____

**STATE OF TEXAS
COUNTY OF TRAVIS**

On _____, 20____, personally appeared _____ and been duly sworn by me, subscribed to the foregoing affidavit and has stated that the facts stated therein are true and correct.

Notary Public, State of Texas

Printed Name of Notary

My Commission Expires: _____

END

Bidding Requirements, Contract Forms and Conditions of the Contract
GENERAL CONDITIONS OF THE CONTRACT
 Section 00700

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ARTICLE 1 – DEFINITIONS

Whenever used in these General Conditions or in the other Contract Documents the following terms have the meanings indicated which are applicable to both the singular and plural thereof:

- 1.1 Addendum** - Written instruments issued by the Contract Awarding Authority which clarify, correct or change the bidding requirements or the Contract Documents prior to the Due Date. "Addenda" is the plural form of Addendum.
- 1.2 Agreement** - Prescribed form, Section 00500.
- 1.3 Alternative Dispute Resolution** - The process by which a disputed Claim may be settled if the OWNER and the CONTRACTOR cannot reach an agreement between themselves, as an alternative to litigation.
- 1.4 Bid** - A complete, properly signed response to an Invitation for Bid that, if accepted, would bind the Bidder to perform the resultant Contract.
- 1.5 Bidder** - A person, firm, or entity that submits a Bid in response to a Solicitation. Any Bidder may be represented by an agent after submitting evidence demonstrating the agent's authority. The agent cannot certify as to his own agency status.
- 1.6 Bid Documents** - The advertisement or Invitation for Bids, instructions to Bidders, the Bid form, the Contract Documents and Addenda.
- 1.7 Calendar Day** - Any day of the week; no days being excepted. Work on Saturdays, Sundays, and/or Legal Holidays shall be coordinated with OWNER.
- 1.8 Change Directive** - A written directive to CONTRACTOR, signed by OWNER, ordering a change in the Work and stating a proposed basis for adjustment, if any, in the Contract Amount or Contract Time, or both. A Change Directive may be used in the absence of total agreement on the terms of a Change Order. A Change Directive does not change the Contract Amount or Contract Time, but is evidence that the parties expect that the change directed or documented by a Change Directive will be incorporated in a subsequently issued Change Order.
- 1.9 Change Orders** - Written agreements entered into between CONTRACTOR and OWNER authorizing an addition, deletion, or revision to the Contract, issued on or after the Execution Date of the Agreement.
- 1.10 Claim** - A written demand seeking, as a matter of right, adjustment or interpretation of Contract terms, payment of money, extension of time or other relief with respect to the terms of the Contract.
- 1.11 Contract** - The binding legal agreement between the OWNER and the CONTRACTOR. The Contract represents the entire and integrated agreement between OWNER and CONTRACTOR for performance of the Work, as evidenced by the Contract Documents.
- 1.12 Contract Amount** - The moneys payable by OWNER to CONTRACTOR for completion of the Work in accordance with the Contract Documents.
- 1.13 Contract Awarding Authority** - A City department authorized to enter into Contracts on behalf of the City.
- 1.14 Contract Documents** - Project Manual, Drawings, Addenda and Change Orders.
- 1.15 Contract Time** - The number of days allowed for completion of the Work as defined by the Contract. When any period is referred to in days, it will be computed to exclude the first and include the last day of such period. A day of twenty-four hours measured from midnight to the next midnight will constitute a day.

- 1.16 CONTRACTOR** - The individual, firm, corporation, or other business entity with whom OWNER has entered into the Contract for performance of the Work.
- 1.17 Critical Path** - The longest series of tasks that runs consecutively from the beginning to the end of the project, as determined by duration and workflow sequence. This longest path sets the managerial standard for how quickly a project can be completed, given appropriate resources.
- 1.18 Drawings** - Those portions of the Contract Documents which are graphic representations of the scope, extent and character of the Work to be furnished and performed by CONTRACTOR and which have been approved by OWNER. Drawings may include plans, elevations, sections, details, schedules and diagrams. Shop Drawings are not Drawings as so defined.
- 1.19 Due Date** - The date and time specified for receipt of Bids.
- 1.20 Engineer/Architect (E/A)** - The OWNER's design professional identified as such in the Contract. The titles of "Architect/Engineer," "Architect" and "Engineer" used in the Contract Documents shall read the same as Engineer/Architect (E/A). Nothing contained in the Contract Documents shall create any contractual or agency relationship between E/A and CONTRACTOR.
- 1.21 Equal** - The terms "equal" or "approved equal" shall have the same meaning.
- 1.22 Execution Date** - Date of last signature of the parties to the Agreement.
- 1.23 Field Order** - A written order issued by Owner's Representative which orders minor changes in the Work and which does not involve a change in the Contract Amount or the Contract Time.
- 1.24 Final Completion** - The point in time when OWNER determines that all Work has been completed and final payment to CONTRACTOR will be made in accordance with the Contract Documents.
- 1.25 Force Account** - a basis of payment for the direct performance of Work with payment based on the actual cost of the labor, equipment and materials furnished and consideration for overhead and profit as set forth in Section 11.5.
- 1.26 Inspector** - The authorized representative of any regulatory agency that has jurisdiction over any portion of the Work.
- 1.27 Invitation for Bid (IFB)** - a Solicitation requesting pricing for a specified Good or Service which has been advertised for Bid in a newspaper and/or the Internet.

1.28 Legal Holidays

1.28.1 The following are recognized by the OWNER:

<u>Holiday</u>	<u>Date Observed</u>
New Year's Day	January 1
Martin Luther King, Jr.'s Birthday	Third Monday in January
President's Day	Third Monday in February
Memorial Day	Last Monday in May
Independence Day	July 4
Labor Day	First Monday in September
Veteran's Day	November 11
Thanksgiving Day	Fourth Thursday in November
Friday after Thanksgiving	Friday after Thanksgiving
Christmas Eve	December 24
Christmas Day	December 25

- 1.28.2** If a Legal Holiday falls on Saturday, it will be observed on the preceding Friday. If a Legal Holiday falls on Sunday, it will be observed on the following Monday.
- 1.28.3** Christmas Eve is observed only if it falls on a Monday through Thursday. If Christmas Eve falls on a Friday, that day is observed as the Christmas Day holiday.
- 1.29 Milestones** - A significant event specified in the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all the Work.
- 1.30 Notice to Proceed** - A Written Notice given by OWNER to CONTRACTOR fixing the date on which the Contract Times will commence to run and on which CONTRACTOR shall start to perform CONTRACTOR's obligations under the Contract Documents.
- 1.31 OWNER** - City of Austin, Texas, a municipal corporation, home rule city and political subdivision organized and existing under the laws of the State of Texas, acting through the City Manager or his/her designee, officers, agents or employees to administer design and construction of the Project.
- 1.32 Owner's Representative** - The designated representative of the OWNER. The Owner's Representative will be identified at the pre-construction conference.
- 1.33 Partial Occupancy or Use** - Use by OWNER of a substantially completed part of the Work for the purpose for which it is intended (or a related purpose) prior to Substantial Completion of all the Work, provided OWNER and CONTRACTOR have accepted in writing the responsibilities assigned to each of them for payments, retainage if any, security, maintenance, utilities, corrective work, insurance and warranties.
- 1.34 Project** - The subject of the Work and its intended result.
- 1.35 Project Manual** - That portion of the Contract Documents which may include the following: introductory information; bidding requirements, Contract forms and General and Supplemental General Conditions; General Requirements; Specifications; Drawings; MBE/WBE or DBE Procurement Program Package; Project Safety Manual; and Addenda.
- 1.36 Resident Project Representative** - The authorized representative of E/A who may be assigned to the site or any part thereof.
- 1.37 Shop Drawings** - All drawings, diagrams, illustrations, schedules and other data or information which are specifically prepared or assembled by or for CONTRACTOR and submitted by CONTRACTOR as required by the Contract Documents.
- 1.38 Specifications** - Those portions of the Contract Documents consisting of written technical descriptions as applied to the Work, which set forth to CONTRACTOR, in detail, the requirements which must be met by all materials, equipment, construction systems, standards, workmanship, equipment and services in order to render a completed and useful project.
- 1.39 Solicitation** - Solicitation means, as applicable, an Invitation for Bid or a Request for Proposal.
- 1.40 Substantial Completion** - The stage in the progress of the Work when the Work, or designated portion thereof, is sufficiently complete in accordance with the Contract Documents so OWNER can occupy or utilize the Work for its intended use, as evidenced by a Certificate of Substantial Completion approved by OWNER.
- 1.41 Subcontractor** - An individual, firm, corporation, or other business entity having a direct contract with CONTRACTOR for the performance of a portion of the Work under the Contract.
- 1.42 Sub-Subcontractor** - A person or entity who has a direct or indirect contract with a Subcontractor to perform a portion of the work.

- 1.43 Superintendent** - The representative of CONTRACTOR authorized in writing to receive and fulfill instructions from the Owner's Representative, and who shall supervise and direct construction of the Work.
- 1.44 Supplemental General Conditions** - The part of the Contract Documents which amends or supplements the General Conditions. All General Conditions which are not so amended or supplemented remain in full force and effect.
- 1.45 Supplier** - An individual or entity having a direct contract with CONTRACTOR or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by CONTRACTOR or any Subcontractor.
- 1.46 Time Extension Request** - An approved request for time extension on a form acceptable to OWNER.
- 1.47 Work** - The entire completed construction, or the various separately identifiable parts thereof, required to be furnished under the Contract Documents.
- 1.48 Working Day** - Any day of the week, not including Saturdays, Sundays, or Legal Holidays in which conditions under the CONTRACTOR's control will permit work for a continuous period of not less than seven (7) hours between 7:00 a.m. and 6:00 p.m. If other contract documents reduce the continuous period available for work to less than seven (7) hours, those reduced hours shall be considered a Working Day. Upon agreement with Owner's Representative, work on Saturdays, Sundays, and/or Legal Holidays may be allowed and will be considered a Working Day.
- 1.49 Working Hours**
- 1.49.1 Working Day Contract:** All Work shall be done between 7:00 a.m. and 6:00 p.m. unless otherwise authorized by Owner's Representative. However, emergency work may be done without prior permission as indicated in paragraph 6.11.5. If night Work is authorized and conditions under CONTRACTOR's control will permit Work for a continuous period of not less than seven (7) hours between 12:00 a.m. and 11:59 p.m. it will be considered a Working Day. Night Work may be revoked at any time by OWNER if CONTRACTOR fails to maintain adequate equipment and supervision for the prosecution and control of the night Work.
- 1.49.2 Calendar Day Contract:** All Work shall be done between 7:00 a.m. and 6:00 p.m. unless authorized by Owner's Representative. However, emergency work may be done without prior permission as indicated in paragraph 6.11.5. Night Work may be revoked at any time by OWNER if CONTRACTOR fails to maintain adequate equipment and supervision for the prosecution and control of the night Work.
- 1.50 Written Notice** - Written communication between OWNER and CONTRACTOR. Written Notice shall be deemed to have been duly served if delivered in person to Owner's Representative or CONTRACTOR's duly authorized representative, or if delivered at or sent by registered or certified mail to the attention of Owner's Representative or CONTRACTOR's duly authorized representative at the last business address known to the party giving notice.

ARTICLE 2 - PRELIMINARY MATTERS

- 2.1 Delivery of Agreement, Bonds, Insurance, etc.:** Within five (5) Working Days after written notification of award of Contract, CONTRACTOR shall deliver to OWNER signed Agreement, Bond(s), Insurance Certificate(s) and other documentation required for execution of Contract.

2.2 Copies of Documents: OWNER shall furnish to CONTRACTOR (1) copy of the executed Project Manual, one (1) set of Drawings and one (1) copy of the Contract Documents in .pdf format. Additional copies will be furnished, upon request, at the cost specified in the Supplemental General Conditions."

2.3 Commencement of Contract Times; Notice to Proceed: The Contract Time(s) will begin to run on the day indicated in the Notice to Proceed. Notice to Proceed will be given at any time within sixty (60) calendar days after the Execution Date of the Agreement, unless extended by written agreement of the parties.

2.4 Before Starting Construction:

2.4.1 No Work shall be done at the site prior to the preconstruction conference without OWNER's approval. Before undertaking each part of the Work, CONTRACTOR shall carefully study the Contract Documents to check and verify pertinent figures shown thereon compare accurately to all applicable field measurements. CONTRACTOR shall promptly report in writing to Owner's Representative any conflict, error, ambiguity or discrepancy which CONTRACTOR may discover and shall obtain a written interpretation or clarification from Owner's Representative before proceeding with any Work affected thereby. CONTRACTOR shall be liable to OWNER for failure to report any conflict, error, ambiguity or discrepancy in the Contract Documents of which CONTRACTOR knew or reasonably should have known.

2.4.2 It is mutually agreed between CONTRACTOR and OWNER that successful completion of the Work within the Contract completion date is of primary importance. Therefore, the CONTRACTOR hereby agrees to submit to the Owner's Representative for review and approval, or acceptance, as appropriate, all information requested within this section, including a Baseline Schedule, no later than five working days prior to the preconstruction conference. The Owner's Representative will schedule the preconstruction conference upon the timely submittal of the required documents, unless time is extended by written mutual agreement. CONTRACTOR will submit the following:

- .1** A proposed Baseline Schedule developed using Microsoft Project software, unless otherwise approved by Owner's Representative ("Baseline Schedule") to confirm that all Work will be completed within the Contract time. The Baseline Schedule must (i) indicate the times (number of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract Documents, (ii) identify the Critical Path for completing the Work, (iii) identify when all Subcontractors will be utilized, and (iv) take into consideration any limitations on Working Hours, including baseline Rain Days on Calendar Day Contracts, and (v) be prepared accordance with Section 01310, Schedules and Reports, if applicable; otherwise in accordance with Section 01300, Submittals. This Baseline Schedule, a copy of which shall be made available at the job site(s), must contain sufficient detail to indicate that the CONTRACTOR has properly identified required Work elements and tasks, has provided for a sufficient and proper workforce and integration of Subcontractors, has provided sufficient resources and has considered the proper sequencing of the Work required to result in a successful Project that can be completed within the Contract time;
- .2** An organizational chart showing the principals and management personnel who will be involved with the Work, including each one's responsibilities for the Work;
- .3** To the extent not set forth in the Section 00400 Statement of Contractor's Experience, a complete listing of the CONTRACTOR's employees proposed for

the Work. List each one by name and job title, and show length of employment with CONTRACTOR;

- .4 To the extent not set forth in the Section 00410 Statement of Bidder's Safety Experience, a discussion and confirmation of the CONTRACTOR's commitment to safety by providing a copy of its employee's safety handbook and the safety records for the past three years of CONTRACTOR's proposed project manager and Superintendent;
- .5 A preliminary schedule of Shop Drawing and sample submittals;
- .6 A preliminary schedule of values for all of the Work, subdivided into component parts in sufficient detail to serve as the basis for progress payments during construction. Such prices will be deemed to include an appropriate amount of overhead and profit applicable to each item of Work;
- .7 To the extent not set forth in the Section 00400 Statement of Contractor's Experience, a letter designating CONTRACTOR's Superintendent and project manager, and a confirmation of past project experience for the CONTRACTOR's Superintendent and project manager specifically intended for the Work;
- .8 A letter from CONTRACTOR and Subcontractor(s) listing salaried specialists. A salaried specialist is anyone except an hourly worker whose wage rate is governed by Section 00830 of this agreement;
- .9 A letter designating the project's Safety Representative along with a copy of their Department of Labor-issued OSHA card proving completion of the OSHA 30-hour Construction Safety and Health training class in the OSHA Outreach Training Program;
- .10 If applicable, an excavation safety system plan;
- .11 If applicable, a plan illustrating proposed locations of temporary facilities;
- .12 A completed Non-Use of Asbestos Affidavit (Prior to Construction);
- .13 A letter designating the Texas Registered Professional Land Surveyor for layout of the Work, if the Work requires the services of a surveyor; and
- .14 Copies of the Department of Labor-issued OSHA cards proving completion of the OSHA 10-hour Construction Safety and Health training class in the OSHA Outreach Training Program for each worker (defined as a person covered by a prevailing wage determination) that will initially be on site. Note that workers must possess other OSHA-required training as the work dictates in accordance with the OSHA Act; and specifically, the contractor must meet the required provisions in 509S Excavation Safety Systems required prior to commencing excavation;
- .15 A certificate of worker's compensation insurance coverage for all persons providing services on the Project (refer to 5.2.1.3 in Section 00700 for definition of persons providing services on the Project);
- .16 A Construction Equipment Emissions Reduction Plan.

2.4.3 Neither the acceptance nor the approval of any of the submittals required in paragraph 2.4.2, above, will constitute the adoption, affirmation, or direction of the CONTRACTOR'S means and methods.

2.5 Preconstruction Conference: Prior to commencement of Work at the site, CONTRACTOR must attend a preconstruction conference with Owner's Representative and others, as set forth in Division 1. Additionally, prior to commencement of work, the CONTRACTOR shall

host a preconstruction conference for the Subcontractors identified on the originally approved compliance plan, Owner's Representative and others, as set forth in Division 1. The CONTRACTOR shall notify all Subcontractors five (5) working days prior to the preconstruction conference. If the CONTRACTOR has included Subcontractors in the initial preconstruction conference, the additional Subcontractor preconstruction conference will not be required.

- 2.6 Initially Acceptable Schedules:** Unless otherwise provided in the Contract Documents, CONTRACTOR shall obtain approval of Owner's Representative on the Baseline Schedule submitted in accordance with paragraph 2.4.2.1 and Division 1 before the first progress payment will be made to CONTRACTOR. The Baseline Schedule must provide for an orderly progression of the designated portion of the Work to completion within any specified Milestones and Contract Times. Acceptance of the schedule by Owner's Representative will neither impose on Owner's Representative responsibility or liability for the sequencing, scheduling or progress of the Work nor interfere with or relieve CONTRACTOR from CONTRACTOR's full responsibility for such Work. CONTRACTOR's schedule of Shop Drawings and sample submissions must provide an acceptable basis for reviewing and processing the required submittals. CONTRACTOR's schedule of values must conform to the requirements set forth in Division 1.

ARTICLE 3 - CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

3.1 Intent:

- 3.1.1** The intent of the Contract Documents is to include all information necessary for the proper execution and timely completion of the Work by CONTRACTOR. The CONTRACTOR will execute the Work described in and reasonably inferable from the Contract Documents as necessary to produce the results indicated by the Contract Documents. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all. In cases of disagreement, the following order of precedence shall generally govern (top item receiving priority of interpretation):

- Signed Agreement
- Addendum to the Contract Documents, including approved changes
- Supplemental General Conditions
- General Conditions
- Other Bidding Requirements and Contract Forms
- Special Provisions to the Standard Technical Specifications
- Special Specifications
- Standard Technical Specifications
- Drawings (figured dimensions shall govern over scaled dimensions)
- Project Safety Manual (if applicable),

with the understanding that a common sense approach will be utilized as necessary so that the Contract Documents produce the intended response.

- 3.1.2** Unless otherwise stated in the Contract Documents, words that have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings.

- 3.2 Reporting and Resolving Discrepancies:** If, during the performance of the Work, CONTRACTOR discovers any conflict, error, ambiguity or discrepancy within the Contract Documents or between the Contract Documents and any provisions of any such law or regulation applicable to the performance of the Work or of any such standard, specification, manual or code or instructions of any Supplier, CONTRACTOR shall report it to Owner's

Representative in writing at once, and CONTRACTOR shall not proceed with the Work affected thereby until an amendment or supplement to the Contract Documents has been issued by one of the methods indicated in paragraph 3.3.1 or 3.3.2. CONTRACTOR shall be liable to OWNER for failure to report any such conflict, error, ambiguity or discrepancy of which CONTRACTOR knew or reasonably should have known.

3.3 Modifying and Supplementing Contract Documents:

3.3.1 The Contract Documents may be modified to provide for additions, deletions, and revisions in the Work or to modify the terms and conditions by change order or contract amendment.

3.3.2 In addition, the requirements of the Contract Documents may be supplemented, and minor variations and deviations in the Work may be authorized, in one or more of the following ways:

- .1** Field Order.
- .2** Review of a Shop Drawing or sample.
- .3** Written interpretation or clarification.

3.4 Reuse of Documents Prohibited: CONTRACTOR and any Subcontractor or Supplier or other person or organization performing or furnishing any of the Work under a direct or indirect contract with OWNER: (i) shall not have or acquire any title to or ownership rights in any of the Drawings, Specifications or other documents (or copies of any thereof) prepared by or bearing the seal of E/A or E/A's consultant, and (ii) shall not reuse any of such Drawings, Specifications, other documents or copies on extensions of the Project or any other project without written consent of OWNER and E/A.

3.5 In the event of the breach by the OWNER or CONTRACTOR of any of its obligations under the Contract, so as to support a claim by the other party, the provisions of this Contract will be equitably construed to allow the resolution of such a claim and all of the other provisions of this Contract shall continue in full force and effect as to the rights, responsibilities, and remedies of the OWNER and CONTRACTOR.

ARTICLE 4 - AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; REFERENCE POINTS

4.1 Availability of Lands: The OWNER will provide access to all land and interests in land required for the Work and will notify CONTRACTOR of any restrictions in such access. CONTRACTOR may make a claim if OWNER fails to provide timely access to the Work. CONTRACTOR must obtain any additional temporary construction facilities, stockpiling or storage sites not otherwise provided.

4.2 Subsurface and Physical Conditions:

4.2.1 CONTRACTOR specifically represents that it has carefully examined the plans, the geotechnical report, if any, and the site of the proposed Work and is thoroughly familiar with all of the conditions surrounding construction of the Project, having had the opportunity to conduct any and all additional inquiry, tests and investigation that he/she deems necessary and proper. CONTRACTOR acknowledges the receipt of the geotechnical report, if any, and agrees that the report, while it is an accurate record of the geotechnical conditions at the boring locations, is not a guarantee of specific site conditions which may vary between boring locations.

4.2.2 CONTRACTOR must notify OWNER in writing as soon as reasonably possible, but no later than three (3) calendar days, if unforeseen conditions are encountered at the site which are (i) subsurface or otherwise concealed physical conditions that differ materially from those indicated in the Contract Documents or (ii) unknown physical conditions of an unusual nature, that differ materially from those normally encountered in the type of work being performed under this Contract. CONTRACTOR may not disturb the conditions until OWNER conducts an investigation. Owner's Representative and E/A will promptly investigate such conditions with E/A. If it is determined that such conditions differ materially and cause an increase or decrease in the CONTRACTOR's cost of or time required for performance of any part of the Work, Owner's Representative will recommend an equitable adjustment in the Contract Amount or Contract Time, or both. If it is determined that such conditions are not materially different from those indicated in the Contract Documents, Owner's Representative will notify CONTRACTOR in writing of such findings and the Contract will not be adjusted. CONTRACTOR may dispute such a determination in accordance with Article 16.

4.2.3 Notwithstanding any other provision of this Contract, CONTRACTOR is solely responsible for the location and protection of any and all public utility lines and utility customer service lines in the Work area. "Public utility lines" means the utility distribution and supply system, and "utility customer service lines" means the utility lines connecting customers to the utility distribution and collection system. Generally, existing utility customer service line connections are not shown on the Drawings. CONTRACTOR shall notify "One Call" and exercise due care to locate, mark, uncover and otherwise protect all such lines in the construction zone and any of CONTRACTOR's work or storage areas. CONTRACTOR's responsibility for the location and protection of utilities is primary and nondelegable. CONTRACTOR shall indemnify or reimburse such expenses or costs (including fines that may be levied against OWNER) that may result from unauthorized or accidental damage to all public lines and utility customer service lines in the work area. OWNER reserves the right to repair any damage CONTRACTOR causes to such utilities at CONTRACTOR's expense. If a public line and/or customer service line is damaged by CONTRACTOR, CONTRACTOR shall give verbal notice within one (1) hour and written notice within twenty-four (24) hours to the Owner's Representative.

4.2.4 CONTRACTOR shall take reasonable precaution to avoid disturbing primitive records and antiquities of archaeological, paleontological or historical significance. No objects of this nature shall be disturbed without written permission of OWNER and Texas Historical Commission. When such objects are uncovered unexpectedly, CONTRACTOR shall stop all Work in close proximity and notify Owner's Representative and Texas Historical Commission of their presence and shall not disturb them until written permission and permit to do so is granted. All primitive rights and antiquities uncovered on OWNER's property shall remain property of State of Texas, Texas Historical Commission conforming to Texas Natural Resources Code. If it is determined by OWNER, in consultation with Texas Historical Commission, that exploration or excavation of primitive records or antiquities on Project site is necessary to avoid loss, CONTRACTOR shall cooperate in salvage work attendant to preservation. If the Work stoppage or salvage work causes an increase in CONTRACTOR's cost of, or time required for, performance of the Work, the Contract Amount and/or Contract Time will be equitably adjusted.

4.3 Reference Points: Unless otherwise specified, all control lines and bench marks suitable for use in layout will be furnished by OWNER. Lay out of the Work shall be performed in accordance with Division 1. Controls, bench marks and property boundary markers shall be carefully preserved by CONTRACTOR by use of flags, staffs or other visible devices and in

case of destruction or removal by CONTRACTOR or its employees, such controls and bench marks shall be replaced by a Registered Professional Land Surveyor at CONTRACTOR's expense. City of Austin survey monuments damaged by CONTRACTOR will be reestablished by OWNER at CONTRACTOR's expense.

4.4 Hazardous Materials:

- 4.4.1** To the extent provided by applicable law, OWNER shall be responsible for any hazardous material uncovered or revealed at the site which was not shown, indicated or identified in the Contract Documents to be within the scope of the Work and which may present a substantial danger to persons or property exposed thereto in connection with the Work at the site. CONTRACTOR shall immediately notify Owner's Representative of any suspected hazardous materials encountered before or during performance of the Work and shall take all necessary precautions to avoid further disturbance of the materials.
- 4.4.2** CONTRACTOR shall be responsible for any hazardous materials brought to the site by CONTRACTOR, Subcontractor, Suppliers or anyone else for whom CONTRACTOR is responsible.
- 4.4.3** No asbestos-containing materials shall be incorporated into the Work or brought on Project site without prior approval of OWNER. The CONTRACTOR shall not knowingly use, specify, request or approve for use any asbestos containing materials or lead-based paint without the OWNER'S written approval. When a specific product is specified, the CONTRACTOR shall endeavor to verify that the product does not include asbestos containing material.
- 4.4.4** Refer to Division 1 for hazardous material definitions and procedures.
 - .1** Unless otherwise expressly provided in the Contract Documents to be part of the Work, CONTRACTOR is not responsible for any unexpected Hazardous Materials encountered at the site. Upon encountering any Hazardous Conditions, CONTRACTOR must stop Work immediately in the affected area and duly notify OWNER and, if required by applicable law or regulations, all government or quasi-government entities with jurisdiction over the Project or site.
 - .2** Upon receiving notice of the presence of suspected Hazardous Materials, OWNER shall take the necessary measures required to ensure that the Hazardous Materials are remediated or rendered harmless. Such necessary measures shall include OWNER retaining qualified independent experts to (i) ascertain whether Hazardous Materials have actually been encountered, and, if they have been encountered, (ii) prescribe the remedial measures that OWNER must take either to remove the Hazardous Materials or render the Hazardous Materials harmless.
 - .3** CONTRACTOR shall be obligated to resume Work at the affected area of the Project only after OWNER's Representative provides written certification that (i) the Hazardous Materials have been removed or rendered harmless and (ii) all necessary approvals have been obtained from all government and quasi-government entities having jurisdiction over the Project or site. The CONTRACTOR shall be responsible for continuing the Work in the unaffected portion of the Project and site.
 - .4** CONTRACTOR will be entitled, in accordance with these General Conditions, to an adjustment in its Contract Amount and/or Contract Time(s) to the extent CONTRACTOR's cost and/or time of performance have been adversely impacted by the presence of Hazardous Materials.

- .5 Notwithstanding the preceding provisions of this Section 4.1, OWNER is not responsible for Hazardous Materials introduced to the Site by CONTRACTOR, Subcontractors or anyone for whose acts they may be liable. CONTRACTOR shall indemnify, defend and hold harmless OWNER and OWNER's officers, directors, employees and agents from and against all claims, losses, damages, liabilities and expenses, including attorneys' fees and expenses, arising out of or resulting from those hazardous materials introduced to the site by CONTRACTOR, Subcontractors or anyone for whose acts they may be liable.
- 4.4.5 CONTRACTOR shall be responsible for use, storage and remediation of any hazardous materials brought to the Site by CONTRACTOR, Subcontractors, Suppliers or anyone else for whom CONTRACTOR is responsible.

ARTICLE 5 - BONDS AND INSURANCE

5.1 Surety and Insurance Companies: All bonds and insurance required by the Contract Documents shall be obtained from solvent surety or insurance companies that are duly licensed by the State of Texas and authorized to issue bonds or insurance policies for the limits and coverages required by the Contract Documents. The bonds shall be in a form acceptable to OWNER and shall be issued by a surety which complies with the requirements of Texas Insurance Code, Title 12, Chapter 3503. The surety must obtain reinsurance for any portion of the risk that exceeds 10% of the surety's capital and surplus. For bonds exceeding \$100,000, the surety must also hold a certificate of authority from the U.S. Secretary of the Treasury or have obtained reinsurance for any liability in excess of \$1,000,000 from a reinsurer that is authorized as a reinsurer in Texas or holds a certificate of authority from the U.S. Secretary of the Treasury. In the event that the proposed surety for a contract award in excess of \$100,000 does not hold a certificate of authority from the U.S. Secretary of the Treasury and/or its proposed reinsurer does not hold a certificate of authority from the U.S. Secretary of the Treasury, the OWNER may require additional financial solvency information from the Bidder/Contractor and the proposed surety company and/or reinsurer as part of the 00400 Statement of Bidders Experience and determination of bidder responsibility in the award of the Contract.

5.2 Workers' Compensation Insurance Coverage:

5.2.1 Definitions:

- .1 Certificate of coverage ("certificate") - A copy of a certificate of insurance, a certificate of authority to self-insure issued by the commission, or a coverage agreement (DWC-81, DCW-82, DCW-83, or DCW84), showing statutory workers' compensation insurance coverage for the person's or entity's employees providing services on the Project, for the duration of the Project.
- .2 Duration of the Project - includes the time from the beginning of the Work on the Project until the CONTRACTOR's/ person's Work on the Project has been completed and accepted by OWNER.
- .3 Persons providing services on the Project ("subcontractor" in Texas Labor Code, Section 406.096) - includes all persons or entities performing all or part of the services the CONTRACTOR has undertaken to perform on the Project, regardless of whether that person contracted directly with the CONTRACTOR and regardless of whether that person has employees. This includes, without limitation, independent contractors, Subcontractors, leasing companies, motor carriers, owner-operators, employees of any such entity, or employees of any entity which furnishes persons to provide services on the Project. "Services" include, without limitation, providing, hauling, or delivering equipment or

materials, or providing labor, transportation, or other service related to a project. "Services" does not include activities unrelated to the Project, such as food/beverage vendors, office supply deliveries, and delivery of portable toilets.

- 5.2.2** CONTRACTOR shall provide coverage, based on proper reporting of classification codes and payroll amounts and filing of any coverage agreements, which meets the statutory requirements of Texas Labor Code, Section 401.011(44) for all employees of the CONTRACTOR providing services on the Project, for the duration of the Project.
- 5.2.3** CONTRACTOR must provide a certificate of coverage to OWNER prior to being awarded the Contract.
- 5.2.4** If the coverage period shown on the CONTRACTOR's current certificate of coverage ends during the duration of the Project, the CONTRACTOR must, prior to the end of the coverage period, file a new certificate of coverage with OWNER showing that coverage has been extended.
- 5.2.5** CONTRACTOR shall obtain from each person providing services on the Project, and provide to OWNER:
 - .1** A certificate of coverage, prior to that person beginning Work on the Project, so OWNER will have on file certificates of coverage showing coverage for all persons providing services on the Project; and
 - .2** No later than seven (7) days after receipt by CONTRACTOR, a new certificate of coverage showing extension of coverage, if the coverage period shown on the current certificate of coverage ends during the duration of the Project.
- 5.2.6** CONTRACTOR shall retain all required certificates of coverage for the duration of the Project and for one (1) year thereafter.
- 5.2.7** CONTRACTOR shall notify OWNER in writing by certified mail or personal delivery, within ten (10) days after CONTRACTOR knew or should have known, of any change that materially affects the provision of coverage of any person providing services on the Project.
- 5.2.8** CONTRACTOR shall post on each Project site a notice, in the text, form and manner prescribed by the Texas Workers' Compensation Commission, informing all persons providing services on the Project that they are required to be covered, and stating how a person may verify coverage and report lack of coverage.
- 5.2.9** CONTRACTOR shall contractually require each person with whom it contracts to provide services on a Project, to:
 - .1** Provide coverage, based on proper reporting of classification codes and payroll amounts and filing of any coverage agreements, which meets the statutory requirements of Texas Labor Code, Section 401.011(44) for all of its employees providing services on the Project, for the duration of the Project;
 - .2** Provide to CONTRACTOR, prior to that person beginning Work on the Project, a certificate of coverage showing that coverage is being provided for all employees of the person providing services on the Project, for the duration of the Project;
 - .3** Provide CONTRACTOR, prior to the end of the coverage period, a new certificate of coverage showing extension of coverage, if the coverage period shown on the current certificate of coverage ends during the duration of the Project;

- .4 Obtain from each other person with whom it contracts, and provide to CONTRACTOR: a) a certificate of coverage, prior to the other person beginning Work on the Project; and b) a new certificate of coverage showing extension of coverage, prior to the end of the coverage period, if the coverage period shown on the current certificate of coverage ends during the duration of the Project;
- .5 Retain all required certificates of coverage on file for the duration of the Project and for one (1) year thereafter;
- .6 Notify OWNER in writing by certified mail or personal delivery, within ten (10) days after the person knew or should have known, of any change that materially affects the provision of coverage of any person providing services on the Project; and
- .7 Contractually require each person with whom it contracts, to perform as required by paragraphs 5.2.9.1 - 5.2.9.7, with the certificates of coverage to be provided to the person for whom they are providing services.

5.2.10 By signing this Contract or providing or causing to be provided a certificate of coverage, CONTRACTOR is representing to OWNER that all employees of the CONTRACTOR who will provide services on the Project will be covered by workers' compensation coverage for the duration of the Project, that the coverage will be based on proper reporting of classification codes and payroll amounts, and that all coverage agreements will be filed with the appropriate insurance carrier or, in the case of a self-insured, with the Texas Worker's Compensation Commission's Division of Self- Insurance Regulation. Providing false or misleading information may subject CONTRACTOR to administrative penalties, criminal penalties, civil penalties, or other civil actions.

5.2.11 CONTRACTOR's failure to comply with any of these provisions is a breach of Contract by CONTRACTOR which entitles OWNER to declare the Contract void if CONTRACTOR does not remedy the breach within ten (10) days after receipt of notice of breach from OWNER.

5.3 Other Bond and Insurance Requirements: For additional insurance requirements, refer to the Supplemental General Conditions.

5.4 Bonds:

5.4.1 General.

- .1 Bonds, when required, shall be executed on forms furnished by or acceptable to OWNER. All bonds signed by an agent must be accompanied by a certified copy of such agent's authority to act.
- .2 If the surety on any bond furnished by CONTRACTOR is declared bankrupt or becomes insolvent or its right to do business is terminated in the State of Texas or it ceases to meet the requirements of the preceding paragraph, CONTRACTOR shall within ten (10) days thereafter substitute another bond and surety, both of which must be acceptable to OWNER.
- .3 When Performance Bonds and/or Payment Bonds are required, each shall be issued in an amount of one hundred percent (100%) of the Contract Amount as security for the faithful performance and/or payment of all CONTRACTOR's obligations under the Contract Documents. Performance Bonds and Payment Bonds shall be issued by a solvent surety company authorized to do business in the State of Texas, and shall meet any other requirements established by law or by OWNER pursuant to applicable law. Any surety duly authorized to do business in Texas may write Performance and Payment Bonds on a project

without reinsurance to the limit of ten percent (10%) of its capital and surplus. Such a surety must reinsure any obligations over ten percent (10%).

5.4.2 Performance Bond.

- .1** If the Contract Amount exceeds \$100,000, CONTRACTOR shall furnish OWNER with a Performance Bond in the form set out in Section 00610.
- .2** If the Contract Amount exceeds \$25,000 but is less than or equal to \$100,000, CONTRACTOR shall furnish OWNER with a Performance Bond in the form set out in Section 00610, unless the original Contract Time is 60 Calendar Days/40 Working Days or less, in which case CONTRACTOR can agree to the following terms and conditions for payment in lieu of providing a Performance Bond: no moneys will be paid to CONTRACTOR until completion and acceptance of the Work by OWNER; CONTRACTOR shall be entitled to receive 95% of the Contract Amount following Final Completion, and the remaining 5% of the Contract Amount following the one (1) year warranty period.
- .3** If the Contract Amount is less than or equal to \$25,000, CONTRACTOR will not be required to furnish a Performance Bond; provided that no moneys will be paid to CONTRACTOR until completion and acceptance of the Work by OWNER under the following terms and conditions: CONTRACTOR shall be entitled to receive 95% of the Contract Amount following Final Completion, and the remaining 5% of the Contract Amount following the one (1) year warranty period.
- .4** If a Performance Bond is required to be furnished, it shall extend for the one (1) year warranty period.

5.4.3 Payment Bond.

- .1** If the Contract Amount exceeds \$50,000, CONTRACTOR shall furnish OWNER with a Payment Bond in the form set out in Section 00620.
- .2** If the Contract Amount is less than or equal to \$50,000, CONTRACTOR will not be required to furnish a Payment Bond; provided that no moneys will be paid to CONTRACTOR until completion and acceptance of the Work by OWNER under the terms and conditions specified in paragraph 5.4.2.3.

5.4.4 Maintenance Bond: If the Contract Documents contemplate a period of maintenance beyond the one (1) year contractual warranty period, OWNER agrees that any bond to be required for such maintenance work will be in the amount of the maintenance work during any extended maintenance period.

ARTICLE 6 - CONTRACTOR'S RESPONSIBILITIES

6.1 Supervision and Superintendence:

- 6.1.1** CONTRACTOR shall supervise, inspect and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. CONTRACTOR shall be solely responsible for the means, methods, techniques, sequences and procedures of construction. CONTRACTOR shall be responsible to see that the completed Work complies accurately with the Contract Documents.
- 6.1.2** CONTRACTOR shall have a competent, qualified Superintendent on the Work at all times that work is in progress. To be qualified, at a minimum, the Superintendent must be effective at (a) communicating both verbally and in writing with the OWNER's representative; (b) receiving and fulfilling instructions from the Owner's

Representative; (c) supervising and directing the construction of the Work; (d) reading and interpreting the plans and specifications; (e) writing, preparing and submitting necessary paperwork; and (f) understanding work sequencing and scheduling. The Superintendent will be CONTRACTOR's representative on the Work and shall have the authority to act on the behalf of CONTRACTOR. All communications given to the Superintendent shall be as binding as if given to CONTRACTOR. Either CONTRACTOR or the Superintendent shall provide a cellular telephone number and an emergency and home telephone number at which one or the other may be reached if necessary when work is not in progress. The Superintendent must be an employee of the CONTRACTOR, unless such requirement is waived in writing by the Owner's Representative. If the CONTRACTOR proposes a management structure with a Project Manager supervising, directing, and managing construction of the work in addition to or in substitution of a Superintendent, the requirements of these Construction Documents with respect to the Superintendent shall likewise apply to any such Project Manager.

- .1 CONTRACTOR shall present the resume of the proposed Superintendent to the Owner's Representative showing evidence of experience and successful superintendence and direction of work of a similar scale and complexity. If, in the opinion of the Owner's Representative, the proposed Superintendent does not indicate sufficient experience in line with the Work, he/she will not be allowed to be the designated Superintendent for the Work.
- .2 The Superintendent shall not be replaced without Written Notice to Owner's Representative. If CONTRACTOR deems it necessary to replace the Superintendent, CONTRACTOR shall provide the necessary information for approval, as stated above, on the proposed new Superintendent.
- .3 A qualified substitute Superintendent may be designated in the event that the designated Superintendent is temporarily away from the Work, but not to exceed a time limit acceptable to the Owner's Representative. CONTRACTOR shall replace the Superintendent upon OWNER's request in the event the Superintendent is unable to perform to OWNER's satisfaction.

6.2 Labor, Materials and Equipment:

- 6.2.1** CONTRACTOR shall maintain a work force adequate to accomplish the Work within the Contract Time. CONTRACTOR agrees to employ only orderly and competent workers, skillful in performance of the type of Work required under this Contract. CONTRACTOR, Subcontractors, Sub-subcontractors, and their employees may not use or possess any alcoholic or other intoxicating beverages, illegal drugs or controlled substances while on the job or on OWNER's property, nor may such workers be intoxicated, or under the influence of alcohol or drugs, on the job. Subject to the applicable provisions of Texas law, CONTRACTOR, Subcontractors, Sub-subcontractors, and their employees may not use or possess any firearms or other weapons while on the job or on OWNER'S property. If OWNER or Owner's Representative notifies CONTRACTOR that any worker or representative of Contractor is incompetent, disorderly, abusive, or disobedient, has knowingly or repeatedly violated safety regulations, has possessed any firearms in contravention of the applicable provisions of Texas law, or has possessed or was under the influence of alcohol or drugs on the job, CONTRACTOR shall immediately remove such worker or representative, including an officer or owner of CONTRACTOR, from performing Contract Work, and may not employ such worker or representative again on Contract Work without OWNER's prior written consent. CONTRACTOR shall at all times maintain good discipline and order on or off the site in all matters pertaining

to the Project. Workers on Project shall be paid not less than wage rates, including fringe benefits, as published by the Department of Labor (DOL) for Building Construction and Heavy and Highway Trades "AS APPLICABLE" and/or the minimum wage required by City of Austin Ordinance No. 20160324-015, whichever is higher. The Total Minimum Wage required can be met using any combination of cash and non-cash qualified fringe benefits provided the cash component meets or exceeds the minimum wage required.

- 6.2.2** Unless otherwise specified in Division 1, CONTRACTOR shall provide and pay for all materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities and all other facilities and incidentals necessary for the furnishing, performance, testing, start-up and completion of the Work.
- 6.2.3** All materials and equipment shall be of good quality and new (including new products made of recycled materials, pursuant to Section 361.426 of the Texas Health & Safety Code), except as otherwise provided in the Contract Documents. If required by Owner's Representative, CONTRACTOR shall furnish satisfactory evidence (reports of required tests, manufacturer's certificates of compliance with material requirements, mill reports, etc.) as to the kind and quality of materials and equipment. All materials and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned in accordance with instructions of the applicable Supplier, except as otherwise provided in the Contract Documents.
- 6.2.4** Substitutes and "Approved Equal" Items:
- .1** Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the specification or description is intended to establish the type, function and quality required. Unless the specification or description contains words reading that no like, equivalent or "approved equal" item or no substitution is permitted, other items of material or equipment of other Suppliers may be submitted by CONTRACTOR, at CONTRACTOR'S sole risk, including disruptions to the Critical Path of the Progress Schedule, to E/A through Owner's Representative under the following circumstances:
 - .1.1** "Approved Equal": If in E/A's sole discretion an item of material or equipment proposed by CONTRACTOR is functionally equal to that named and sufficiently similar so that no change in related Work will be required, it may be considered by E/A as an "approved equal" item, in which case review of the proposed item may, in E/A's sole discretion, be accomplished without compliance with some or all of the requirements for evaluation of proposed substitute items. CONTRACTOR shall provide E/A with the documentation required for E/A to make its determination.
 - .1.2** Substitute Items: If in E/A's sole discretion an item of material or equipment proposed by CONTRACTOR does not qualify as an "approved equal" item under subparagraph 6.2.4.1.1, it will be considered a proposed substitute item. CONTRACTOR shall submit sufficient information as provided in Division 1 to allow E/A to determine that the item of material or equipment proposed is essentially equivalent to that named and a substitute therefor.
 - .2** Substitute Construction Methods and Procedures: If a specific means, method, technique, sequence or procedure of construction is shown or indicated in and expressly required by the Contract Documents, CONTRACTOR may, at CONTRACTOR'S sole risk, including disruptions to the Critical Path of the Progress Schedule, with prior approval of E/A furnish or utilize a substitute

means, method, technique, sequence, or procedure of construction. CONTRACTOR shall submit sufficient information to Owner's Representative to allow E/A, in E/A's sole discretion, to determine that the substitute proposed is equivalent to that expressly called for by the Contract Documents. The procedure for review by E/A will be same as that provided for substitute items in Division 1.

- .3 E/A's Evaluation: E/A will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to subparagraphs 6.2.4.1.1 and 6.2.4.1.2. E/A will be the sole judge of acceptability. No "approved equal" or substitute shall be ordered, installed, or utilized until E/A's review is complete, which will be evidenced by either a Change Order or completion of the Shop Drawing review procedure. OWNER may require CONTRACTOR to furnish at CONTRACTOR's expense a special performance guarantee or other surety bond with respect to any "approved equal" or substitute or for any other delay or disruption to the Critical Path of the Project Schedule attributable to any such substitution. OWNER shall not be responsible for any delay due to review time for any "approved equal" or substitute.
- .4 CONTRACTOR's Expense: All data and documentation to be provided by CONTRACTOR in support of any proposed "approved equal" or substitute item will be at CONTRACTOR's expense.
- .5 The approval of the E/A will not relieve the CONTRACTOR from primary responsibility and liability for the suitability and performance of any proposed substitute item, method or procedure and will not relieve CONTRACTOR from its primary responsibility and liability for curing defective Work and performing warranty work, which the CONTRACTOR shall cure and perform, regardless of any claim the CONTRACTOR may choose to advance against the E/A or manufacturer.

6.2.5 CONTRACTOR agrees to assign to OWNER any rights it may have to bring antitrust suits against its Suppliers for overcharges on materials incorporated in the Project growing out of illegal price fixing agreements. CONTRACTOR further agrees to cooperate with OWNER should OWNER wish to prosecute suits against Suppliers for illegal price fixing.

6.3 Progress Schedule: Unless otherwise provided in Division 1, CONTRACTOR shall adhere to the Baseline Schedule established in accordance with paragraph 2.6 as it may be adjusted from time to time as provided below:

- 6.3.1** CONTRACTOR shall submit to Owner's Representative for review and approval any proposed adjustments in the Progress Schedule that will not change the Contract Times or Milestones on a monthly basis. Any such proposed adjustments must be substantiated with documentation of any changes to the underlying logic of the Progress Schedule. CONTRACTOR's Progress Schedule must show how the CONTRACTOR will consistently advance the progress of the Work in accordance with the Critical Path of the Work and the Contract Time or Milestones. Such adjustments will conform generally to the Progress Schedule then in effect and additionally will comply with any provisions of Division 1 applicable thereto.
- 6.3.2** Proposed adjustments in the Progress Schedule that will change the Contract Times or Milestones shall be submitted in accordance with the requirements of Article 12. Any such proposed adjustments must be substantiated with documentation of any changes to the underlying logic of the Progress Schedule. Such adjustments may only be made by a Change Order or Time Extension Request in accordance with Article 12.

6.4 Concerning Subcontractors, Suppliers and Others:

- 6.4.1** Assignment: CONTRACTOR agrees to retain direct control of and give direct attention to the fulfillment of this Contract. CONTRACTOR agrees not to, by Power of Attorney, or otherwise, assign said Contract without the prior written consent of OWNER. In addition, without OWNER'S written consent, the CONTRACTOR will not subcontract the performance of the entire Work or the supervision and direction of the Work.
- 6.4.2** Award of Subcontracts for Portions of the Work: CONTRACTOR shall not employ any Subcontractor, Supplier or other person or organization, whether initially or as a substitute, against whom OWNER may have reasonable objection. OWNER will communicate such objections by Written Notice. If OWNER requires a change without good cause of any Subcontractor, person or organization previously accepted by OWNER, the Contract Amount shall be increased or decreased by the difference in the cost occasioned by any such change, and appropriate Change Order shall be issued. CONTRACTOR shall not substitute any Subcontractor, person or organization that has been accepted by OWNER, unless the substitute has been accepted in writing by OWNER. No acceptance by OWNER of any Subcontractor, Supplier or other person or organization shall constitute a waiver of any right of OWNER to reject defective Work.
- 6.4.3** CONTRACTOR shall enter into written agreements with all Subcontractors and Suppliers which specifically binds the Subcontractors or Suppliers to the applicable terms and conditions of the Contract Documents for the benefit of OWNER and E/A. The OWNER reserves the right to specify that certain requirements shall be adhered to by all Subcontractors and Sub-subcontractors as indicated in other portions of the Contract Documents and these requirements shall be made a part of the agreement between CONTRACTOR and Subcontractor or Supplier. Subject to and in accordance with the above requirements, the CONTRACTOR must provide and will be deemed for all purposes to have provided in its contracts with major Subcontractors or Suppliers on the Project (those contracts of more than \$10,000) the following specific provision: alternative dispute resolution (paragraphs 16.2 and 16.3), which shall be mandatory in the event of a subcontractor or supplier claim and a prerequisite for the submission of any derivative claim. The CONTRACTOR's standard subcontract form is subject to the OWNER's review and approval. The OWNER may request and the CONTRACTOR will provide within five (5) working days a copy of any subcontract requested by the OWNER.
- 6.4.4** CONTRACTOR shall be fully responsible to OWNER for all acts and omissions of the Subcontractors, Suppliers and other persons and organizations performing or furnishing any of the Work under a direct or indirect contract with CONTRACTOR just as CONTRACTOR is responsible for CONTRACTOR's own acts and omissions. Nothing in the Contract Documents shall create for the benefit of any such Subcontractor, Supplier or other person or organization any contractual relationship between OWNER and any such Subcontractor, Supplier or other person or organization, nor shall it create any obligation on the part of OWNER or E/A to pay or to see to the payment of any moneys due any such Subcontractor, Supplier or other person or organization except as may otherwise be required by laws and regulations.
- 6.4.5** CONTRACTOR shall be solely responsible for efficiently scheduling and coordinating the Work of Subcontractors, Suppliers and other persons and organizations performing or furnishing any of the Work under a direct or indirect contract with CONTRACTOR in order to avoid any delays or inefficiencies in the prosecution of the Work. CONTRACTOR shall require all Subcontractors, Suppliers and such other persons and organizations performing or furnishing any of the Work to communicate with Owner's Representative through CONTRACTOR.

- 6.4.6** The divisions and sections of the Specifications and the identifications of any Drawings shall not control CONTRACTOR in dividing or delineating the Work to be performed by any specific trade.
- 6.4.7** CONTRACTOR shall pay each Subcontractor and Supplier their appropriate share of payments made to CONTRACTOR not later than ten (10) Calendar Days of CONTRACTOR's receipt of payment from OWNER. Upon request from Owner, the CONTRACTOR has two (2) Working Days to provide documentation verifying Payment to Subcontractor(s). The CONTRACTOR is required to notify the Subcontractor(s) in writing of rejection of Application for Payment within two (2) Working Days following notification by Owner. Failure of CONTRACTOR to make payments to Subcontractors or for labor, materials or equipment in accordance to this contract, may be cause to reject future Bids by the CONTRACTOR in accordance with Section 00100 9.B.4 and may be cause to reject payment in accordance with 00700 14.4.1.3.
- 6.4.8** To the extent allowed by Texas law, the OWNER shall be deemed to be a third party beneficiary to each subcontract and may, if OWNER elects, following a termination of the CONTRACTOR, require that the Subcontractor(s) perform all or a portion of unperformed duties and obligations under its subcontract(s) for the benefit of the OWNER, rather than the CONTRACTOR; however, if the OWNER requires any such performance by a Subcontractor for the OWNER's direct benefit, then the OWNER shall be bound and obligated to pay such Subcontractor the reasonable value for all Work performed by such Subcontractor to the date of the termination of the CONTRACTOR, less previous payments, and for all Work performed thereafter. In the event that the OWNER elects to invoke its right under this section, OWNER will provide notice of such election to the CONTRACTOR and the affected Subcontractor(s).

6.5 Patent Fees and Royalties:

- 6.5.1** CONTRACTOR shall be responsible at all times for compliance with applicable patents or copyrights encompassing, in whole or in part, any design, device, material, or process utilized, directly or indirectly, in the performance of the Work or the formulation or presentation of its Bid.
- 6.5.2** CONTRACTOR shall pay all royalties and license fees and shall provide, prior to commencement of Work hereunder and at all times during the performance of same, for lawful use of any design, device, material or process covered by letters, patent or copyright by suitable legal agreement with the patentee, copyright holder, or their duly authorized representative whether or not a particular design, device, material, or process is specified by OWNER.
- 6.5.3** CONTRACTOR shall defend all suits or claims for infringement of any patent or copyright and shall save OWNER harmless from any loss or liability, direct or indirect, arising with respect to CONTRACTOR's process in the formulation of its Bid or the performance of the Work or otherwise arising in connection therewith. OWNER reserves the right to provide its own defense to any suit or claim of infringement of any patent or copyright in which event CONTRACTOR shall indemnify and save harmless OWNER from all costs and expenses of such defense as well as satisfaction of all judgments entered against OWNER.
- 6.5.4** OWNER shall have the right to stop the Work and/or terminate this Agreement at any time in the event CONTRACTOR fails to disclose to OWNER that CONTRACTOR's work methodology includes the use of any infringing design, device, material or process.

6.6 Permits, Fees: Unless otherwise provided in the Supplemental General Conditions, CONTRACTOR shall obtain and pay for all construction permits, licenses and fees required for prosecution of the Work.

6.7 Laws and Regulations:

6.7.1 CONTRACTOR shall give all notices and comply with all laws and regulations applicable to furnishing and performing the Work, including arranging for and obtaining any required inspections, tests, approvals or certifications from any public body having jurisdiction over the Work or any part thereof. Except where otherwise expressly required by applicable laws and regulations, neither OWNER nor E/A shall be responsible for monitoring CONTRACTOR's compliance with any laws and regulations.

6.7.2 Maintaining clean water, air and earth or improving thereon shall be regarded as of prime importance. CONTRACTOR shall plan and execute its operations in compliance with all applicable Federal, State and local laws and regulations concerning control and abatement of water pollution and prevention and control of air pollution.

6.7.3 If CONTRACTOR performs any Work knowing or having reason to know that it is contrary to laws or regulations, CONTRACTOR shall bear all claims, costs, losses and damages arising therefrom; however, it shall not be CONTRACTOR's primary responsibility to make certain that the Specifications and Drawings are in accordance with laws and regulations, but this does not relieve CONTRACTOR of CONTRACTOR's obligations under Article 3.

6.8 Taxes:

6.8.1 CONTRACTOR shall pay only those sales, consumer, use and other similar taxes required to be paid by CONTRACTOR in accordance with the laws and regulations of the State of Texas in the performance of this public works contract.

6.8.2 OWNER is an exempt organization as defined by Chapter 11 of the Property Tax Code of Texas and is thereby exempt from payment of Sales Tax under Chapter 151, Limited Use Sales, Excise and Use Tax, Texas Tax Code, and Article 1066 (C), Local Sales and Use Tax Act, Revised Civil Statutes of Texas.

6.9 Use of Premises:

6.9.1 CONTRACTOR shall confine construction equipment, the storage of materials and equipment and the operations of workers to the site and land and areas identified in and permitted by the Contract Documents and other land and areas permitted by laws and regulations, right-of-way, permits and easements, and shall not unreasonably encumber the premises with construction equipment or other materials or equipment. CONTRACTOR shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof or of any adjacent land or areas, resulting from the performance of the Work. Should any claim be made by any such owner or occupant because of or in connection with the performance of the Work, CONTRACTOR shall promptly settle with such other party by negotiation or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law. CONTRACTOR shall indemnify, defend and hold harmless OWNER, E/A, E/A'S Consultants and anyone directly or indirectly employed by any of them from and against all claims, costs, losses and damages (including court costs and reasonable attorney's fees) arising out of or resulting from any claim or action, legal or equitable, brought by any such owner or occupant against OWNER, E/A or any other party indemnified hereunder to the extent caused by or based upon performance of the work or failure to perform the Work.

6.9.2 During the progress of the Work and on a daily basis, CONTRACTOR shall keep the premises free from accumulations of waste materials, rubbish and other debris resulting from the Work. At the completion of the Work, CONTRACTOR shall remove all waste materials, rubbish and debris from and about the premises as well as all tools, appliances, construction equipment and machinery and surplus materials. CONTRACTOR shall leave the site clean and ready for occupancy by OWNER at Substantial Completion of the Work. CONTRACTOR shall, at a minimum, restore to original condition all property not designated for alteration by the Contract Documents. If the CONTRACTOR fails to clean up at the completion of the Work, OWNER may do so and the cost thereof will be charged against the CONTRACTOR.

6.9.3 CONTRACTOR shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall CONTRACTOR subject any part of the Work or adjacent property to stresses or pressures that will endanger it.

6.10 Record Documents: CONTRACTOR shall maintain in a safe place at the site, or other location acceptable to OWNER, one (1) record copy of all Drawings, Specifications, Addenda, Change Orders, Change Directives, Field Orders and written interpretations and clarifications (issued pursuant to paragraph 9.5) in good order and annotated to show all changes made during construction. These record documents together with all final samples and all final Shop Drawings will be available to OWNER and E/A for reference during performance of the Work. Upon Substantial Completion of the Work, these record documents, samples and Shop Drawings shall be promptly delivered to Owner's Representative.

6.11 Safety and Protection:

6.11.1 CONTRACTOR shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. Upon request, and prior to installation of measures, CONTRACTOR shall submit a site security plan for approval by OWNER. By reviewing the plan or making recommendations or comments, OWNER will not assume liability nor will CONTRACTOR be relieved of liability for damage, injury or loss. CONTRACTOR shall take all necessary precautions for the safety of and shall provide the necessary protection to prevent damage, injury or loss to:

- .1 all persons on the Work site or who may be affected by the Work;
- .2 all the Work and materials and equipment to be incorporated therein, whether in storage on or off the site; and
- .3 other property at the site or adjacent thereto, including, but not limited to, trees, shrubs, lawns, walks, pavements, roadways, structures, utilities and underground facilities not designated for removal, relocation or replacement in the course of construction.

6.11.2 CONTRACTOR shall comply with all applicable laws and regulations of any public body having jurisdiction for safety of persons or property or to protect them from damage, injury or loss; and shall erect and maintain all necessary safeguards for such safety and protection. CONTRACTOR shall notify owners of adjacent property and of underground facilities, and utility owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation and replacement of their property. All damage, injury or loss to any property referred to in paragraph 6.11.1.2 and 6.11.1.3 caused, directly or indirectly, in whole or in part, by CONTRACTOR, Subcontractor, Supplier or any person or organization directly or indirectly employed by any of them to perform or furnish any of the Work or anyone for whose acts any of them may be liable, shall be remedied by CONTRACTOR (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of OWNER, or E/A, or E/A's consultant or

anyone employed by any of them or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the faults or negligence of CONTRACTOR or any Subcontractor, Supplier or other person or organization directly or indirectly employed by any of them). CONTRACTOR's duties and responsibilities for safety and protection of the Work shall continue until such time as all the Work is completed and Owner's Representative has issued a notice to OWNER and CONTRACTOR in accordance with Article 14 that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion). Without limitation, CONTRACTOR shall comply with the following specific provisions:

It shall be the duty and responsibility of CONTRACTOR and all of its subcontractors to be familiar with and comply with 29 USC Section 651, et seq., the Occupational Safety and Health Act of 1970, as amended ("OSHA") and to enforce and comply with all provisions of this Act.

The CONTRACTOR and all of its subcontractors shall comply with all applicable requirements of Subpart P of Part 1926 of 29 C.F.R., OSHA Safety and Health Standards, Texas Health and Safety Code Section 756.023, as amended, and shall submit a unit price for the particular excavation safety systems to be utilized by the Contractor for all excavations which exceed a depth of five feet (5').

Before commencing any excavation which will exceed a depth of five feet (5'), the CONTRACTOR shall provide the Owner with detailed plans and specifications regarding the safety systems to be utilized. Said plans and specifications shall include a certification from a Texas licensed professional engineer indicating full compliance with the OSHA provisions cited above.

6.11.3 Safety Representative: CONTRACTOR shall designate in writing a qualified and experienced safety representative (the "Safety Representative") at the site whose duties and responsibilities shall include safety training; identifying and mitigating hazardous conditions and unsafe work practices; and developing, maintaining and supervising the implementation of safe work practices and safety programs as deemed necessary and appropriate for the Project. The term "Safety Representative" includes any designated Safety Supervisor, Superintendent or Safety Manager. The Safety Representative shall exercise due diligence in the execution of all Project related safety duties. Upon request of OWNER, CONTRACTOR shall provide certifications or other acceptable documentation of the Safety Representative's qualifications. The following requirements will be effective as of September 1, 2010:

- .1** The Safety Representative shall present certification of completion of the OSHA 30-hour Construction Industry Training Outreach Program described at: http://www.osha.gov/dte/outreach/construction_generalindustry/construction.html
- .2** The Safety Representative shall verify that all construction workers (defined as persons covered by a prevailing wage determination) on the job site, whether employed by the CONTRACTOR or subcontractors, have completed the OSHA 10-hour Construction Industry Training Outreach Program described at: http://www.osha.gov/dte/outreach/construction_generalindustry/construction.html. The Safety Representative must receive a certificate of training completion before allowing a worker on site and shall have all such certificates available for inspection by the OWNER.
- .3** The Safety Representative shall ensure that workers, including designated competent persons, have completed all applicable OSHA specific or other training needed to perform their job assignments. Training topics applicable to the scope of the current Project may include, but are not limited to, scaffolds, fall protection, cranes, excavations, electrical safety, tools, concrete

and masonry construction, steel erection, operation of motor vehicles and mechanized equipment.

- .4 The Safety Representative shall post notice on the site of the Work stating that all workers shall have completed OSHA Construction Industry Training. The Owner may require, and the Safety Representative should consider providing a means of readily identifying workers who have completed the required training to monitor compliance with these requirements.
- .5 The Safety Representative shall ensure that all required OSHA and Workers Compensation notices to workers are posted in English and Spanish at one or more conspicuous locations on the work site.

6.11.4 Hazard Communication Programs: CONTRACTOR shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or exchanged between or among employers at the site in accordance with laws and regulations.

6.11.5 Emergencies:

- .1 In emergencies affecting the safety or protection of persons or the Work at the site or adjacent thereto, CONTRACTOR, without special instruction or authorization from OWNER or E/A, is obligated to act reasonably to prevent threatened damage, injury or loss and to mitigate damage or loss to the Work. CONTRACTOR shall give Owner's Representative telephone notification as soon as reasonably practical and a prompt written notice if CONTRACTOR believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby. If Owner's Representative determines that a change in the Contract Documents is required because of the action taken by CONTRACTOR in response to such an emergency, a Change Directive or Change Order will be issued to document the consequences of such action; otherwise OWNER will not be responsible for CONTRACTOR's emergency action.
- .2 Authorized agents of CONTRACTOR shall respond immediately to call-out at any time of any day or night when circumstances warrant the presence on Project site of CONTRACTOR or his agent to protect the Work or adjacent property from damage, restriction or limitation or to take such action or measures pertaining to the Work as may be necessary to provide for the safety of the public. Should CONTRACTOR and/or their agent fail to respond and take action to alleviate such an emergency situation, OWNER may direct other forces to take action as necessary to remedy the emergency condition, and OWNER will deduct any cost of such remedial action from the funds due CONTRACTOR under this Contract.
- .3 In the event there is an accident involving injury to any individual or damage to any property on or near the Work, CONTRACTOR shall provide to Owner's Representative verbal notification within one (1) hour and written notification within twenty-four (24) hours of the event and shall be responsible for recording the location of the event and the circumstances surrounding the event through photographs, interviewing witnesses, obtaining medical reports, police accident reports and other documentation that describes the event. Copies of such documentation shall be provided to Owner's Representative, for OWNER's and E/A's records, within forty-eight (48) hours of the event. Contractor shall cooperate with OWNER on any OWNER investigation of any such incident.

6.11.6 Rest Breaks:

- .1 Except as provided in subsection 6.11.6.2 below, an employee performing construction activity at a construction site is entitled to a rest break of not less than ten (10) minutes for every four (4) hours worked. No employee may be required to work more than 3.5 hours without a rest break. A rest break means a break from work within working hours, excluding meal breaks, during which an employee may not work. A rest break shall be scheduled as near as possible to the midpoint of the work period.
- .2 An employee is not entitled to a rest break under subsection 6.11.6.1 on any day the employee works less than 3.5 hours or spends more than half of his or her work time engaged in non-strenuous labor in a climate controlled environment.
- .3 A sign describing the requirements of this Section 6.11.6 in English and Spanish shall be posted by the employer in each establishment subject to the requirement of a rest break in a conspicuous place or places where notices to employees are customarily posted, in accordance with the OWNER's then current rules for size, content, and location of such signage.
- .4 The violation of Ordinance No. 20100729-047, enacted July 29, 2010, which establishes the rest break requirements set forth above, may be enforced with criminal penalties and civil remedies, as set forth in the Ordinance.

6.11.7 If the Contractor fails to carry out the Work in accordance with the Contract Documents so that a safety violation has occurred, the Owner may order the Contractor to stop the Work or any portion thereof, until the cause for such order has been eliminated. However, the right of the Owner to stop the Work under this paragraph shall not give rise to a duty on the part of the Owner to supervise the Contractor's Work or to control the Contractor's means and methods or to exercise this right for the benefit of the Contractor or any other person or entity. All time lost due to Project shut down will be the Contractor's sole responsibility, will be charged against the Contract Time, and the Contractor will be responsible for any and all expenses incurred. This provision is in addition to and supplemental to the applicable provisions of the Project's ROCIP Safety Manual.

6.11.8 Confined Space Program

- .1 Contractor acknowledges and agrees that the Owner is temporarily transferring management and control of the site of the Work to the Contractor for the purpose of constructing the Project. The Contractor's responsibilities to manage the Work includes the responsibility to manage the property for purposes of compliance with 29 CFR 1926 subpart AA. To the best of Owner's knowledge and belief, Owner has provided the following information in the plans and specifications and other Contract Documents: (i) the location of each known permit space, (ii) the hazards or potential hazards in each space or the reason it is a permit space; and (iii) any precautions that the Owner or any previous contractor has implemented for the protection of employees in the permit space. This transfer will result in the Contractor being both the host employer and the controlling contractor for this portion of the Work.

6.12 Continuing the Work: CONTRACTOR shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with OWNER. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, except as OWNER and CONTRACTOR may otherwise agree in writing.

6.13 CONTRACTOR's General Warranty and Guarantee:

6.13.1 CONTRACTOR warrants and guarantees to OWNER that all Work will conform to the plans and specifications, be performed in a good and workmanlike manner in accordance with the Contract Documents and will not be defective. This warranty will survive the termination or expiration of the Contract. CONTRACTOR's warranty and guarantee hereunder excludes defects or damage caused by:

- .1 abuse, modification or improper maintenance or operation by persons other than CONTRACTOR, Subcontractors or Suppliers; or
- .2 normal wear and tear under normal usage.

6.13.2 CONTRACTOR's obligation to perform and complete the Work in a good and workmanlike manner in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of CONTRACTOR's obligation to perform the Work in accordance with the Contract Documents:

- .1 observations by Owner's Representative and/or E/A;
- .2 recommendation of any progress or final payment by Owner's Representative;
- .3 the issuance of a certificate of Substantial Completion or any payment by OWNER to CONTRACTOR under the Contract Documents;
- .4 use or occupancy of the Work or any part thereof by OWNER;
- .5 any acceptance by OWNER or any failure to do so;
- .6 any review of a Shop Drawing or sample submittal;
- .7 any inspection, test or approval by others; or
- .8 any correction of defective Work by OWNER.

6.14 INDEMNIFICATION:

6.14.1 CONTRACTOR shall defend, indemnify and hold harmless OWNER, E/A, E/A'S Consultants and Sub consultants and their respective officers, directors, partners, employees, agents and other Consultants and any of them (the "INDEMNIFIED PARTIES") from and against all claims, costs, losses and damages (including but not limited to all fees and charges of engineers, architects, attorneys and other professionals and all court or arbitration or other dispute resolution costs) arising out of or resulting from the performance of the Work, provided that any such claim, cost, loss or damage:

- .1 Is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the work itself), including the loss of use resulting therefrom, and
- .2 Is caused in whole or in part by any negligent act or omission of CONTRACTOR, any Subcontractor, any Supplier, any person or organization directly or indirectly employed by any of them to perform or furnish any of the work or anyone for whose acts any of them may be liable, regardless of whether or not caused in part by any negligence or omission of the INDEMNIFIED PARTIES hereunder or whether liability is imposed upon such INDEMNIFIED PARTY by laws and regulations regardless of the negligence of any such person or entity.

In the event that indemnification of the INDEMNIFIED PARTIES is prohibited by law, CONTRACTOR shall nonetheless be solely responsible for any liability arising out of or resulting from the performance of the Work, subject to the limitations set forth above, and shall indemnify and hold harmless the

remaining INDEMNIFIED PARTIES, who may be legally indemnified, from such liability of the CONTRACTOR and the associated costs described above.

- 6.14.2** The indemnification obligation under paragraph 6.14.1 shall not be limited in any way by any limitation on the amount or type of damages, or compensation or benefits payable by or for CONTRACTOR or any such Subcontractor, Supplier or other person or organization under workers' compensation acts, disability benefit acts or other employee benefit acts.
- 6.14.3** The obligations of CONTRACTOR under paragraph 6.14.1 shall not extend to the liability of OWNER, E/A, E/A's consultants, and their officers, directors, partners, employees or agents caused primarily by negligent preparation of maps, drawings, surveys, designs or specifications upon which is placed the applicable state-authorized design professional seal of OWNER's, E/A's or E/A's consultant's officers, directors, partners, employees or agents.
- 6.14.4** In the event CONTRACTOR fails to follow OWNER's directives concerning use of the site, scheduling or course of construction, or engages in other conduct which proximately causes damage to property based on inverse condemnation or otherwise, then and in that event, CONTRACTOR shall indemnify OWNER against all costs resulting from such claims.
- 6.14.5** **In the event CONTRACTOR unreasonably delays progress of the work being done by others on the site so as to cause loss for which OWNER becomes liable, then CONTRACTOR shall indemnify OWNER from and reimburse OWNER for such loss.**
- 6.15** **Survival of Obligations:** All representations, indemnifications, warranties and guarantees made in, required by or given in accordance with the Contract Documents, as well as all continuing obligations indicated in the Contract Documents, will survive final payment, completion and acceptance of the Work and termination or completion of the Agreement.
- 6.16** **Losses from Natural Causes:** Unless otherwise specified, all loss or damage to CONTRACTOR arising out of the nature of the Work to be done or from action of the elements, floods or from unforeseeable circumstances in prosecution of the Work or from unusual obstructions or difficulties which may be encountered in prosecution of the Work, shall be sustained and borne by CONTRACTOR at its own cost and expense.
- 6.17** **Notice of Claim:** Should CONTRACTOR suffer injury or damage to person or property because of any error, omission or act of OWNER or of any of OWNER's employees or agents or others for whose acts OWNER is liable, a Claim must be made to the other party within thirty (30) calendar days of the event giving rise to such injury or damage. The provisions of this paragraph 6.17 shall not be construed as a substitute for or a waiver of the provisions of any applicable statute of limitations or statute of repose.
- 6.18** **Liquidated Damages:** CONTRACTOR or its Surety shall be liable for liquidated damages for the failure of the CONTRACTOR to timely complete the Work or any portion thereof within the Contract Time.

ARTICLE 7 - OTHER WORK

- 7.1** OWNER may perform other work related to the Project at the site by OWNER's own forces, or let other contracts therefor, or have other work performed by utility owners. CONTRACTOR and OWNER agree to and shall use best efforts to cooperate and coordinate the Work with others performing work and other work related to the Project in order to avoid conflicts and delays in the Work. If CONTRACTOR believes that delay or additional

cost is involved because of such action by OWNER, CONTRACTOR may make a Claim as provided in Article 11 or 12.

- 7.2** CONTRACTOR shall afford other contractors who are in a contract with OWNER and each utility owner (and OWNER, if OWNER is performing the additional work with OWNER's employees) proper and safe access to the site and a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work and shall properly connect and coordinate the Work with theirs. Unless otherwise provided in the Contract Documents, CONTRACTOR shall do all cutting, fitting and patching of the Work that may be required to make its several parts come together properly and integrate with such other work. CONTRACTOR shall not endanger any work of others by cutting, excavating or otherwise altering their work and will only cut or alter their work with the written consent of Owner's Representative and the other contractors whose work will be affected. CONTRACTOR shall promptly remedy damage wrongfully caused by CONTRACTOR to completed or partially completed construction or to property of the OWNER or separate contractors.
- 7.3** If the proper execution or results of any part of CONTRACTOR's Work depends upon work performed by others under this Article 7, CONTRACTOR shall inspect such other work and promptly report to Owner's Representative in writing any delays, defects or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of CONTRACTOR's Work. CONTRACTOR's failure to report will constitute an acceptance of such other work as fit and proper for integration with CONTRACTOR's Work except for latent or non-apparent defects and deficiencies in such other work.
- 7.4** OWNER shall provide for coordination of the activities of the OWNER's own forces and of each separate contractor with the Work of CONTRACTOR, who shall cooperate with them. CONTRACTOR shall participate with other separate contractors and Owner's Representative in reviewing their construction Progress Schedules when directed to do so. On the basis of such review, CONTRACTOR shall make any revisions to the construction Progress Schedule deemed necessary after a joint review and mutual agreement. The agreed upon construction Progress Schedules shall then constitute the Progress Schedules to be used by CONTRACTOR, separate contractors and OWNER until subsequently revised.
- 7.5** Costs caused by delays or by improperly timed activities or defective construction shall be borne by the party responsible therefor.

ARTICLE 8 - OWNER'S RESPONSIBILITIES

- 8.1** Prior to the start of construction, OWNER will designate in writing a person or entity to act as Owner's Representative during construction. Except as otherwise provided in these General Conditions, OWNER shall issue all communications to CONTRACTOR through Owner's Representative.
- 8.2** OWNER will not supervise, direct, control or have authority over or be responsible for CONTRACTOR's means, methods, techniques, sequences or procedures of construction or the safety precautions and programs incident thereto. OWNER is not responsible for any failure of CONTRACTOR to comply with laws and regulations applicable to furnishing or performing the Work. OWNER is not responsible for CONTRACTOR's failure to perform or furnish the Work in accordance with the Contract Documents. Failure or omission of OWNER to discover, or object to or condemn any defective Work or material shall not release CONTRACTOR from the obligation to properly and fully perform the Contract.
- 8.3** OWNER is not responsible for the acts or omissions of CONTRACTOR, or of any Subcontractor, any Supplier, or of any other person or organization performing or furnishing any of the Work. CONTRACTOR acknowledges and agrees that OWNER'S direction to

perform Work in accordance with the approved Progress Schedule is not a demand for acceleration or a dictation of CONTRACTOR'S means or methods.

- 8.4** Information or services under the OWNER's control shall be furnished by the OWNER with reasonable promptness to avoid delay in orderly progress of the Work. The OWNER shall have a reasonable amount of time to investigate site conditions, review submittals, analyze requests for changes, and to make other decisions in the orderly administration of the Contract. CONTRACTOR must notify the OWNER in writing, if the time for the investigation, review, analysis of any submittals, required for changes or otherwise required for OWNER'S decision, impacts in any way the Critical Path of the approved Progress Schedule.
- 8.5** The foregoing are in addition to other duties and responsibilities of the OWNER enumerated herein and especially those in respect to Article 4 (Availability of Lands; Subsurface and Physical Conditions; Reference Points), Article 7 (Other Work) and Article 14 (Payments to CONTRACTOR and Completion).
- 8.6 Notice of Claim:** Should OWNER suffer injury or damage to person or property because of any error, omission or act of CONTRACTOR or of any of CONTRACTOR's employees or agents or others for whose acts CONTRACTOR is liable, a Claim will be made to the other party within thirty (30) calendar days of receipt of actual or constructive notice of the event giving rise to such injury or damage. The provisions of this paragraph 8.6 shall not be construed as a substitute for or a waiver of the provisions of any applicable statute of limitations or statute of repose.

ARTICLE 9 - ENGINEER/ARCHITECT'S STATUS DURING CONSTRUCTION

9.1 E/A's Authority and Responsibilities:

- 9.1.1** The duties and responsibilities and the limitations of authority of E/A during construction, as set forth in the Contract Documents, may be assigned or assumed by the OWNER, but shall not be extended without written consent of OWNER and/or E/A. The assignment of any authority, duties or responsibilities to E/A under the Contract Documents, or under any agreement between OWNER and E/A, or any undertaking, exercise or performance thereof by E/A, is intended to be for the sole and exclusive benefit of OWNER and not for the benefit of CONTRACTOR, Subcontractor, Supplier, or any other person or organization, or for any surety or employee or agent of any of them.
- 9.1.2** E/A will not supervise, direct, control or have authority over or be responsible for CONTRACTOR's means, methods, techniques, sequences or procedures of construction, or the safety precautions and programs incident thereto. E/A is not responsible for any failure of CONTRACTOR to comply with laws and regulations applicable to the furnishing or performing the Work. E/A is not responsible for CONTRACTOR's failure to perform or furnish the Work in accordance with the Contract Documents. Failure or omission of E/A to discover, or object to or condemn any defective Work or material shall not release CONTRACTOR from the obligation to properly and fully perform the Contract.
- 9.1.3** E/A is not responsible for the acts or omissions of CONTRACTOR, or of any Subcontractor, any Supplier, or of any other person or organization performing or furnishing any of the Work.
- 9.1.4** If OWNER and E/A agree, E/A will review the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, bonds and certificates of inspection, tests and approvals and other documentation required to be delivered by Article 14, but only to determine generally that their content complies with the requirements of, and in

the case of certificates of inspections, tests and approvals that the results certified indicate compliance with, the Contract Documents.

- 9.1.5** The limitations upon authority and responsibility set forth in this paragraph 9.1 shall also apply to E/A's Consultants, Resident Project Representative and assistants.

- 9.2 E/A as Owner's Representative:** E/A may be designated as the Owner's Representative under paragraph 8.1.

- 9.3 Visits to Site:** If OWNER and E/A agree, E/A will make visits to the site at intervals appropriate to the various stages of construction as E/A deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of CONTRACTOR's executed Work. Based on information obtained during such visits and observations, E/A will endeavor for the benefit of OWNER to determine, in general, if the Work is proceeding in accordance with the Contract Documents. E/A will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. E/A's efforts will be directed toward providing for OWNER a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and on-site observations, E/A will keep OWNER informed of the progress of the Work and will endeavor to guard OWNER against defective Work. E/A's visits and on-site observations are subject to all the limitations on E/A's authority and responsibility set forth in paragraph 9.1.

- 9.4 Resident Project Representative:** If OWNER and E/A agree, E/A will furnish a Resident Project Representative to assist E/A in providing more continuous observation of the Work. The responsibilities and authority and limitations of any such Resident Project Representative and assistants will be as provided in paragraph 9.1 and in the Supplemental General Conditions. OWNER may designate another representative or agent to represent OWNER at the site who is not E/A, E/A's consultant, agent or employee.

- 9.5 Clarifications and Interpretations:** E/A may determine that written clarifications or interpretations of the requirements of the Contract Documents (in the form of drawings or otherwise) are necessary. Such written clarifications or interpretations will be consistent with the intent of and reasonably inferable from the Contract Documents, will be issued with reasonable promptness by Owner's Representative and will be binding on OWNER and CONTRACTOR. If OWNER or CONTRACTOR believes that a written clarification or interpretation justifies an adjustment in the Contract Amount or the Contract Times, OWNER or CONTRACTOR may make a Claim therefor as provided in Article 11 or 12.

- 9.6 Rejecting Defective Work:** E/A will recommend that OWNER disapprove or reject Work which E/A believes to be defective, or believes will not produce a completed Project that conforms to the Contract Documents or will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.

- 9.7 Shop Drawings:** Refer to Division 1 for E/A's authority concerning Shop Drawings.

ARTICLE 10 - CHANGES IN THE WORK

10.1 Changes:

- 10.1.1** Without invalidating the Contract and without notice to any surety, OWNER may, at any time or from time to time, order additions, deletions or revisions in the Work. Such changes in the Work will be authorized by Change Order, Change Directive or Field Order. In the event that the OWNER and the CONTRACTOR are unable to negotiate the terms of a Change Order for the performance of additional Work, the OWNER may, at its election, perform such additional Work with its own

forces or with another contractor and such work will be considered "Other Work" in accordance with Article 7.

- 10.1.2** Changes in the Work shall be performed under applicable provisions of the Contract Documents, and CONTRACTOR shall proceed promptly, unless otherwise provided in the Change Order, Change Directive or Field Order. CONTRACTOR's proposals for changes in the Contract Amount and/or Contract Time shall be submitted within ten (10) Calendar Days of request by Owner's Representative, including impacts to the approved Progress Schedule, unless Owner's Representative grants an extension. OWNER will review each proposal and respond to CONTRACTOR within ten (10) Calendar Days. After review by OWNER, CONTRACTOR shall provide any supporting data requested by Owner's Representative within seven (7) Calendar Days, unless Owner's Representative grants an extension. OWNER will determine within seven (7) Calendar Days whether to pursue the change in Work.
- 10.1.3** CONTRACTOR shall not be entitled to an increase in the Contract Amount or an extension of the Contract Times with respect to any Work performed that is not required by the Contract Documents as amended, modified and supplemented as provided in paragraphs 3.3.1 and 3.3.2, except in the case of an emergency as provided in paragraph 6.11.5 or in the case of uncovering Work as provided in paragraph 13.4.
- 10.1.4** Except in the case of an emergency as provided in paragraph 6.11.5, a Change Order or Change Directive is required before CONTRACTOR commences any activities associated with a change in the Work which, in CONTRACTOR's opinion, will result in a change in the Contract Amount and/or Contract Times.
- 10.1.5** If notice of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Amount or Contract Times) is required by the provisions of any Bond to be given to a surety, the giving of any such notice will be CONTRACTOR's responsibility, and the amount of each applicable Bond will be adjusted accordingly.

10.2 Change Orders:

- 10.2.1** OWNER and CONTRACTOR shall execute appropriate written Change Orders covering:
 - .1** a change in the Work;
 - .2** the amount of the adjustment in the Contract Amount, if any; and
 - .3** the extent of the adjustment in the Contract Time, if any.
- 10.2.2** An executed Change Order shall represent the complete, equitable, and final amount of adjustment in the Contract Amount and/or Contract Time owed to CONTRACTOR or OWNER as a result of the occurrence or event causing the change in the Work encompassed by the Change Order.

10.3 Change Directives:

- 10.3.1** Without invalidating the Contract, OWNER may, by written Change Directive, using the Force Account method, order changes in the Work within the general scope of the Contract consisting of additions, deletions or other revisions, the Contract Amount and Contract Time being adjusted as necessary. "Force Account" means a basis of payment for the direct performance of Work with payment based on the actual cost of the labor, equipment and materials furnished and consideration for overhead and profit as set forth in Section 11.5, below. A Change Directive shall be used in the absence of complete and prompt agreement on the terms of a

Change Order. Where practicable, any items of Work that may be agreed upon, prior to the performance of Work under this Section, will be included in a separate Change Order. For example, the cost of the installation of additional asphalt may be agreed upon based on the unit prices in the Bid.

- 10.3.2** If the Change Directive provides for an adjustment to the Contract Amount, the adjustment shall be based on the method provided in paragraph 11.5.
- 10.3.3** A Change Directive shall be effective immediately and shall be recorded later by preparation and execution of an appropriate Change Order.
- 10.3.4** Upon receipt of a Change Directive, CONTRACTOR shall promptly proceed with the change in the Work involved, provided, prior to the commencement of any Work under this section, the CONTRACTOR must submit its proposed Work plan, anticipated schedule, and a list of its work force and equipment proposed to be used in the Work for OWNER'S approval. Upon such approval, CONTRACTOR must promptly commence and make continuous progress in the Work. The OWNER reserves the right to withhold payment for low production or lack of progress.

10.4 Field Order:

- 10.4.1** Owner's Representative may authorize minor variations in the Work from the requirements of the Contract Documents which do not involve an adjustment in the Contract Amount or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. These shall be accomplished by written Field Order and shall be binding on OWNER and on CONTRACTOR who shall perform the Work involved promptly.
- 10.4.2** If CONTRACTOR believes that a Field Order would require an adjustment in the Contract Amount and/or Contract Times, CONTRACTOR shall make a prompt written request to Owner's Representative for a Change Order. Any request by CONTRACTOR for an adjustment in Contract Amount and/or Contract Times must be made in writing prior to beginning the work covered by the Field Order.

- 10.5 No Damages for Delay:** CONTRACTOR shall receive no compensation for delays or hindrances to the Work, except when direct and unavoidable extra cost to CONTRACTOR is caused by failure of OWNER to provide information or material, if any, which is to be furnished by OWNER or access to the Work and only to the extent that such acts continue after the CONTRACTOR furnishes OWNER with written notice of such failure. When such extra compensation is claimed a written statement thereof shall be presented by CONTRACTOR to OWNER and if by OWNER found correct shall be approved. If delay is caused by specific orders given by OWNER to stop work or by performance of extra Work or by failure of OWNER to provide material or necessary instructions for carrying on the Work, then such delay will entitle CONTRACTOR to an equivalent extension of time, CONTRACTOR's application for which shall, however, be subject to approval of OWNER. No such extension of time shall release CONTRACTOR or surety on its performance bond from all CONTRACTOR's obligations hereunder which shall remain in full force until discharge of the Contract. In no event shall the CONTRACTOR be entitled to any compensation or recovery of any special damages in connection with any delays, including without limitation: consequential damages, lost opportunity costs, impact damages, or other similar damages. The OWNER'S exercise of any of its rights or remedies under the Contract Documents (including without limitation ordering changes in the Work, or directing suspension, rescheduling, or correction of the Work), regardless of the extent or frequency of the OWNER'S exercise of such rights or remedies, shall not be construed as active interference in the CONTRACTOR'S performance of the Work. Except as otherwise provided herein, an extension of Contract Time, to the extent permitted under Article 12, shall be the sole remedy of the CONTRACTOR for any acknowledged delays.

ARTICLE 11 - CHANGE OF CONTRACT AMOUNT

- 11.1** The Contract Amount is stated in the Agreement and, including authorized adjustments, is the total amount payable by OWNER to CONTRACTOR for performance of the Work under the Contract Documents.
- 11.2** The original Contract Amount may not be increased by more than twenty-five percent (25%) and it may not be decreased more than twenty-five percent (25%) without the consent of the CONTRACTOR to such decrease, except in the event of a termination for convenience under paragraph 15.2 or the failure of the City Council to appropriate sufficient funding for the Project, in which events it is agreed that the consent of the CONTRACTOR will not be required.
- 11.3** The Contract Amount shall only be changed by a Change Order. Any claim for an adjustment in the Contract Amount shall be made by Written Notice delivered by the party making the Claim to the other party promptly (but in no event later than thirty (30) calendar days) after the start of the occurrence or event giving rise to the Claim and stating the general nature of the Claim. Notice of the amount of the Claim with supporting data shall be delivered within thirty (30) calendar days after Written Notice of Claim is delivered by claimant, and shall represent that the adjustment claimed covers all known amounts to which claimant is entitled as a result of said occurrence or event. If OWNER and CONTRACTOR cannot otherwise agree, all Claims for adjustment in the Contract Amount shall be determined as set out in Article 16.
- 11.4** Determination of Value of Work:
- 11.4.1** The value of any Work covered by a Change Order for an adjustment in the Contract Amount will be determined by one or more of the following methods:
- .1** by application of unit prices contained in the Contract Documents to the quantities of the items involved.
 - .2** by a mutually agreed lump sum properly itemized and supported by sufficient substantiating data, including documentation by subcontractors performing the work, to permit evaluation.
 - .3** by cost of Work plus CONTRACTOR's fee for all overhead costs and profit (determined as provided in paragraph 11.5).
 - .4** No cost will be included in the change order for time spent preparing the change order, nor will costs be included for an estimate of time to negotiate the change order costs for machinery, tools, or equipment as described in subparagraph 11.5.3
- 11.4.2** Before using the method described in paragraph 11.4.1.3, OWNER and CONTRACTOR agree to negotiate a Change Order using the methods identified in paragraphs 11.4.1.1 and 11.4.1.2, as appropriate, to determine the adjustment in the Contract Amount.
- 11.5** **Cost of Work:** If neither of the methods defined in paragraphs 11.4.1.1 nor 11.4.1.2 can be agreed upon before a change in the Work is commenced which will result in an adjustment in the Contract Amount, then the change in the Work will be performed by Change Directive, using the Force Account method, and payment will be made as follows:
- 11.5.1** For all personnel, CONTRACTOR will receive actual field cost wage rates for each hour that said personnel are actually engaged in such Work, as substantiated by its certified payroll, to which will be added an amount equal to twenty-five percent (25%) of the sum thereof as compensation for CONTRACTOR's and any effected

Subcontractor's total overhead and profit. No separate charge will be made by CONTRACTOR or its Subcontractor(s) for organization or overhead expenses. In no case will the rate of wage be less than the minimum shown in the Contract for a particular category. CONTRACTOR will also receive an amount equal to 55% of the wages paid personnel, excluding the 25% compensation provided above, for CONTRACTOR's and any effected Subcontractor's cost of premiums on public liability insurance, workers' compensation insurance, social security and unemployment insurance. The actual cost of CONTRACTOR's bond(s) on the extra Work will be paid based on invoices from surety. No charge for superintendence will be made unless considered necessary and ordered by OWNER.

- 11.5.2** CONTRACTOR will receive the actual cost, including freight charges, of the materials used and installed on such Work, to which costs will be added a sum equal to twenty-five percent (25%) thereof as compensation for CONTRACTOR's and any affected Subcontractor's total overhead and profit. In case material invoices indicate a discount may be taken, the actual cost will be the invoice price minus the discount.
- 11.5.3** For machinery, trucks, power tools, or other similar equipment (the "equipment") agreed to be necessary by OWNER and CONTRACTOR, OWNER will allow CONTRACTOR the Regional and Model Year adjusted Monthly Ownership Cost divided by 176 plus the Hourly Estimated Operating Costs as given in the latest edition of the "Rental Rate Blue Book" as published by EquipmentWatch (1-800-669-3282) for each hour that said equipment is in use on such work. The established equipment rates will be paid for each hour that the equipment is utilized in the Work. In the event that the equipment is used intermittently during the Work, full payment for an eight-hour day will be made if the equipment is not idle more than four (4) hours of the day. If the equipment is idle more than four (4) hours in a day, then payment will be made only for the actual hours worked. No additional compensation will be allowed on the equipment for CONTRACTOR's or any affected Subcontractor's overhead and profit. OWNER may accept an actual rental invoice in lieu of the method of calculation set forth in paragraph 11.5.3 for equipment rented exclusively for Force Account Work or for equipment not included in the Rental Rate Blue Book.
- 11.5.4** The compensation, as herein provided for, shall be received by CONTRACTOR and any affected Subcontractor as payment in full for work done by Change Directive and will include use of small tools, and total overhead expense and profit. CONTRACTOR and Owner's Representative shall compare records of work done by Change Directive at the end of each day. Copies of these records will be made upon forms provided for this purpose by OWNER and signed by both Owner's Representative and CONTRACTOR, with one copy being retained by OWNER and one by CONTRACTOR. Refusal by CONTRACTOR to sign these records within two (2) working days of presentation does not invalidate the accuracy of the record.

11.6 Unit Price Work:

- 11.6.1** Where the Contract Documents provide that all or part of the Work is to be unit price Work, initially the Contract Amount will be deemed to include for all unit price work an amount equal to the sum of the established unit price for each separately identified item of unit price work times the estimated quantity of each item as indicated in the Bid. The estimated quantities of items of unit price work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Amount. Determinations of the actual quantities and classifications of unit price work performed by CONTRACTOR will be made by Owner's Representative. Owner's Representative will review with CONTRACTOR the

preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise).

- 11.6.2** When "plan quantity" is indicated for a Bid item, CONTRACTOR shall be paid amount specified in the Contract Documents without any measurements.
- 11.6.3** Each unit price will be deemed to include an amount considered by CONTRACTOR to be adequate to cover CONTRACTOR's overhead and profit for each separately identified item.
- 11.6.4** A Major Item is any individual Bid item in the Bid that has a total cost equal to or greater than five percent (5%) of the original Contract Amount or \$50,000, whichever is greater, computed on the basis of Bid quantities and Contract unit prices.
- 11.6.5** OWNER or CONTRACTOR may make a Claim for an adjustment in the Contract Amount in accordance with Article 11 if:
 - .1** the actual quantity of any Major Item should become as much as twenty percent (20%) more than or twenty percent (20%) less than that in the Bid; or
 - .2** CONTRACTOR presents documentation contesting accuracy of "plan quantity" and Owner's Representative verifies quantity and determines original value is in error by five percent (5%) or more;

Provided, however, in the event a Major Item is reduced by twenty percent (20%) or more of the amount in the Bid, no additional Article 11 profit or overhead will be added, if, due to other additions in the Work, the net value of the Contract Amount is not reduced.

ARTICLE 12 - CHANGE OF CONTRACT TIMES

12.1 Working Day and Calendar Day Contracts:

- 12.1.1** The Contract Times (or Milestones) may only be changed by Change Order or Time Extension Request duly executed by both CONTRACTOR and Owner's Representative. Any claim for an adjustment of the Contract Times (or Milestones) shall be made by Written Notice delivered by the party making the Claim to the other party promptly (but in no event later than thirty (30) calendar days after the start of the occurrence or event giving rise to the delay) and stating the general nature of the delay. Notice of the extent of the delay with supporting data shall be delivered within thirty (30) calendar days after Written Notice of Claim is delivered by claimant, and shall represent that the adjustment claimed is the entire adjustment to which claimant is entitled as a result of said occurrence or event. If OWNER and CONTRACTOR cannot otherwise agree, all Claims for adjustment in the Contract Times (or Milestones) shall be determined as set out in Article 16. No Claim for an adjustment in the Contract Times (or Milestones) will be valid if not submitted in accordance with the requirements of this paragraph.
- 12.1.2** When CONTRACTOR is at fault and OWNER stops the Work, so that corrections in the Work can be made by CONTRACTOR, no extension in time will be allowed.
- 12.1.3** When CONTRACTOR is prevented from completing any part of the Work within the Contract Times (or Milestones) due to delay beyond the control of both OWNER and CONTRACTOR, an extension of the Contract Times (or Milestones) in an amount equal to the time lost due to such delay shall be CONTRACTOR's sole and exclusive remedy for such delay. If performance by the CONTRACTOR or OWNER

is interrupted by any occurrence not occasioned by its own conduct, whether such occurrence be an act of god or the result of war, riot, civil commotion, sovereign conduct, or the conduct of a third party, then such performance will be excused for a period of time necessary to remedy its effects, provided, however, in such an event, a conference will be held within three (3) business days to establish a proposed new Progress Schedule for the Project.

12.1.4 OWNER will consider time extension requests and may grant CONTRACTOR an extension of time because of:

- .1** Changes ordered in the work which justify additional time.
- .2** Failure of materials or products being at the Project site due to delays in transportation or failures of Suppliers, which are not the result of CONTRACTOR's, Subcontractor's or Supplier's negligence. The request for an extension of time shall be supported by a citation of acts demonstrating that the delays are beyond CONTRACTOR's control, including, but not limited to, CONTRACTOR's efforts to overcome such delays documented as follows:
 - a)** Copy of purchase order for delayed item(s) indicating date ordered by CONTRACTOR/ Subcontractor and date purchase order received by Supplier.
 - b)** If item(s) require Shop Drawings or other submittal information in accordance with the Contract Documents, provide record of date submittal(s) forwarded to Owner's Representative, date submittal(s) returned to CONTRACTOR, and date submittal(s) forwarded to Supplier.
 - c)** Copy of document(s) from Supplier, on Supplier's letterhead, indicating date(s) item(s) would be ready for shipment and/or actual shipment date(s).
 - d)** Copies of all correspondence between CONTRACTOR / Subcontractor and Supplier indicating CONTRACTOR / Subcontractor's efforts to expedite item(s).
 - e)** If item(s) are being purchased by a Subcontractor, provide correspondence, meeting notes, etc., that reflect CONTRACTOR's efforts with the Subcontractor to expedite delivery of the item(s).
- .3** When acts of OWNER, E/A, utility owners or other contractors employed by OWNER delay progress of work through no fault of CONTRACTOR. The CONTRACTOR will only be entitled to an extension of time for delays that affect the Critical Path of the Work and that are not caused by the CONTRACTOR.
- .4** When CONTRACTOR is delayed by strikes, lockouts, fires, losses from natural causes, or other unavoidable cause or causes beyond CONTRACTOR's control.

12.2 Calendar Day Contracts:

- 12.2.1** Under a Calendar Day Contract, CONTRACTOR may be granted an extension of time because of unusual inclement weather, including but not limited to unusual rainfall events, which are beyond the normal rainfall recorded and expected for Austin, Texas. However, the CONTRACTOR will not be granted an extension of time for "normal rainfall", as described below.
- 12.2.2** "Unusual Inclement Weather" is defined as a rain event or other weather related event which occurs at the site and is of sufficient magnitude to prevent

CONTRACTOR from performing units of Work critical to maintaining the Progress Schedule.

- 12.2.3** Baseline Rain Day Determination. "Normal rainfall" compiled by the State climatologist, based on U.S. Weather Bureau Records for Austin, Texas, is considered a part of the Calendar Day Contract, and is not a justification for an extension of time. Listed below are the number of days in each month for which no compensatory days for rainfall events ("Rain Days") in such months may be claimed:

January.....	8 days
February.....	8 days
March.....	7 days
April.....	7 days
May.....	9 days
June.....	6 days
July.....	5 days
August.....	5 days
September.....	7 days
October.....	7 days
November.....	7 days
December.....	7 days

Rain Days in addition to the baseline Rain Day determination described above will be measured with the Owner's Representative's approval at the nearest operational public weather data collection facility to the site, including but not limited to the OWNER's early warning flood gauge system.

- 12.2.4** CONTRACTOR may receive credit in any month for Unusual Inclement Weather, and specifically for any Rain Days in that month which exceed the number of Rain Days allocated to that month, if a Claim is made in accordance with paragraph 12.1.1 and the weather event meets the definition for "Unusual Inclement Weather", and as applicable, "Rain Day" and such claimed day is a day on which Work critical to maintaining the Progress Schedule is scheduled to be performed and is otherwise capable of being performed.

ARTICLE 13 - TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

- 13.1 Notice of Defects:** Prompt notice of all defective Work of which OWNER or E/A has actual knowledge will be given to CONTRACTOR. All defective Work may be rejected, corrected or accepted as provided in Article 13. CONTRACTOR must give OWNER and E/A prompt notice of any defective Work of which CONTRACTOR has actual knowledge.
- 13.2 Access to Work:** OWNER, E/A, E/A's Consultants, other representatives and personnel of OWNER, independent testing laboratories and governmental agencies having jurisdiction will have access to the Work at reasonable times for observing, inspecting and testing. CONTRACTOR shall provide them proper and safe conditions for such access, and advise

them of CONTRACTOR's site safety procedures and programs so that they may comply therewith as applicable.

13.3 Tests and Inspections:

- 13.3.1** CONTRACTOR shall give timely notice of readiness of the Work for all required inspections, tests or approvals, and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.
- 13.3.2** OWNER shall employ and pay for services of an independent testing laboratory to perform all inspections, tests or approvals required by the Contract Documents except:
- .1** for inspections, tests or approvals covered by paragraphs 13.3.3 and 13.3.4 below;
 - .2** that costs incurred for tests or inspections conducted pursuant to paragraph 13.4.3 shall be paid as provided in paragraph 13.4.3;
 - .3** for reinspecting or retesting defective Work, including any associated costs incurred by the testing laboratory for cancelled tests or standby time; and
 - .4** as otherwise specifically provided in the Contract Documents.
- 13.3.3** If laws or regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested or approved by an employee or other representative of such public body, CONTRACTOR shall assume full responsibility for arranging and obtaining such inspections, tests or approvals, pay all costs in connection therewith and furnish Owner's Representative the required certificates of inspection or approval.
- 13.3.4** CONTRACTOR shall also be responsible for arranging and obtaining and shall pay all costs in connection with any inspections, tests or approvals required for OWNER's and E/A's review of submittals covering materials, equipment, and mix designs to be incorporated in the Work.
- 13.3.5** All testing laboratories shall meet the requirements of ASTM E-329.

13.4 Uncovering Work:

- 13.4.1** If any Work (or the work of others) that is to be inspected, tested or approved is covered by CONTRACTOR without written concurrence of Owner's Representative, or if any Work is covered contrary to the written request of Owner's Representative, it must, if requested by Owner's Representative, be uncovered and recovered at CONTRACTOR's expense.
- 13.4.2** Uncovering Work as provided in paragraph 13.4.1 shall be at CONTRACTOR's expense unless CONTRACTOR has given Owner's Representative timely notice of CONTRACTOR's intention to cover the same and Owner's Representative has not acted within five (5) working days to such notice.
- 13.4.3** If Owner's Representative considers it necessary or advisable that covered Work be observed, inspected or tested, CONTRACTOR shall uncover, expose or otherwise make available for observation, inspection or testing that portion of the Work in question, furnishing all necessary labor, material and equipment. If it is found that such Work is defective, CONTRACTOR shall pay all claims, costs, losses and damages caused by, arising out of or resulting from such uncovering, exposure, observation, inspection and testing and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and OWNER shall be entitled to an appropriate decrease in the

Contract Amount, and may make a Claim therefor as provided in Article 11. If, however, such Work is not found to be defective, CONTRACTOR shall be allowed an increase in the Contract Amount or an extension of the Contract Times (or Milestones), or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement and reconstruction; and CONTRACTOR may make a Claim therefor as provided in Articles 11 and 12.

13.5 OWNER May Stop the Work:

13.5.1 If the Work is defective, or CONTRACTOR fails to supply sufficient skilled workers, suitable materials, and/or equipment; or fails to furnish or perform the Work in such a way that the Work in progress or the completed Work will conform to the Contract Documents, OWNER may order CONTRACTOR to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of OWNER to stop the Work shall not give rise to any duty on the part of OWNER to exercise this right for the benefit of CONTRACTOR or any surety or other party.

13.5.2 If CONTRACTOR fails to correct defective Work or submit a satisfactory plan to take corrective action, with procedure and time schedule, OWNER may order CONTRACTOR to stop the Work, or any portion thereof, until cause for such order has been eliminated, or take any other action permitted by this Contract. A notice to stop the Work, based on defects, shall not stop calendar or working days charged to the Project.

13.6 Correction or Removal of Defective Work: If required by OWNER, CONTRACTOR shall promptly, as directed, either correct all defective Work, whether or not fabricated, installed or completed, or, if the Work has been rejected by Owner's Representative, remove it from the site and replace it with Work that is not defective. CONTRACTOR shall correct or remove and replace defective Work, or submit a plan of action detailing how the deficiency will be corrected, within the time frame identified in the notice of defective Work. CONTRACTOR shall pay all claims, costs, losses and damages caused by or resulting from such correction or removal (including but not limited to all costs of repair or replacement of work of others).

13.7 Warranty period:

13.7.1 If within two years after the date of Substantial Completion or such longer period of time as may be prescribed by laws or regulations or by the terms of any applicable special guarantee required by the Contract Documents or by any specific provision of the Contract Documents (e.g. paragraph 14.11.2), any Work, including work performed after the Substantial Completion date, is found to be defective, CONTRACTOR shall promptly, without cost to OWNER and in accordance with OWNER's written instructions:

- (i) correct such defective Work, or, if it has been rejected by OWNER, remove it from the site and replace it with Work that is not defective, and
- (ii) satisfactorily correct or remove and replace any damage to other Work or the work of others resulting therefrom.

If CONTRACTOR does not promptly comply with the terms of such instructions, or in an emergency where delay would cause serious risk of loss or damage, OWNER may have the defective Work corrected or the rejected Work removed and replaced, and all claims, costs, losses and damages caused by or resulting from such removal and replacement (including but not limited to all costs of repair or replacement of work of others) will be paid by CONTRACTOR. The warranty period will be deemed to be renewed and recommenced in connection with the completed items of Work requiring correction.

13.7.2 In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the warranty period for that item may start to run from an earlier date if so provided in the Contract Documents.

13.7.3 If correction of defective Work will affect the function or use of the facility CONTRACTOR shall not proceed with correction of defective Work without prior coordination and approval of OWNER.

13.7.4 The obligations of the CONTRACTOR to perform warranty work will survive the acceptance of the Work and any termination of the Contract.

13.8 Acceptance of Defective Work: If, instead of requiring correction or removal and replacement of defective Work, OWNER decides to accept it, OWNER may do so. CONTRACTOR shall pay all claims, costs, losses and damages attributable to OWNER's evaluation of and determination to accept such defective Work. If any such acceptance occurs prior to recommendation of final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents and compensating OWNER for the diminished value of the defective Work. If the acceptance occurs after such recommendation, an appropriate amount will be paid by CONTRACTOR to OWNER after a calculation by OWNER of the diminution in value of the defective Work.

13.9 OWNER May Correct Defective Work: If CONTRACTOR fails within a reasonable time after Written Notice of OWNER to correct defective Work, or to remove and replace rejected Work, or if CONTRACTOR fails to perform the Work in accordance with the Contract Documents, or if CONTRACTOR fails to comply with any other provision of the Contract Documents, OWNER may, after seven (7) calendar days' Written Notice to CONTRACTOR, correct and remedy any such deficiency. If, in the opinion of the Owner's Representative, significant progress has not been made during this seven (7) calendar day period to correct the deficiency, the OWNER may exercise any actions necessary to remedy the deficiency. In exercising the rights and remedies under this paragraph, OWNER shall proceed expeditiously. In connection with such corrective and remedial action, OWNER may exclude CONTRACTOR from all or part of the site, take possession of all or part of the Work, and suspend CONTRACTOR's services related thereto, and incorporate in the Work all materials and equipment stored at the site or for which OWNER has paid CONTRACTOR but which are stored elsewhere. CONTRACTOR shall allow OWNER, its agents and employees, OWNER's other contractors, E/A and E/A's consultants access to the site to enable OWNER to exercise the rights and remedies under this paragraph. All claims, costs, losses and damages incurred or sustained by OWNER in exercising such rights and remedies will be charged against CONTRACTOR and a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work. Such claims, costs, losses and damages will include but not be limited to all costs of repair or replacement of work of others destroyed or damaged by correction, removal or replacement of CONTRACTOR's defective Work. CONTRACTOR shall not be allowed an extension of the Contract Times (or Milestones), or claims of damage because of any delay in the performance of the Work attributable to the exercise by OWNER of OWNER's rights and remedies hereunder.

ARTICLE 14 - PAYMENTS TO CONTRACTOR AND COMPLETION

14.1 Application for Progress Payment:

14.1.1 Within 45 days from when the work was performed by the Contractor and Subcontractors, but not more often than once a month, CONTRACTOR shall submit to Owner's Representative for review an Application for Payment, in a form acceptable to OWNER, filled out and signed by CONTRACTOR covering the Work

completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents.

- 14.1.2** Such applications shall not include requests for payment on account of changes in the Work which have been properly authorized by Change Directives but not yet included in Change Orders.
- 14.1.3** Such applications shall not include requests for payment of amounts the CONTRACTOR does not intend to pay to a Subcontractor or Supplier because of a dispute or other reason.
- 14.1.4** If payment is requested on the basis of materials or equipment not incorporated in the Work but delivered and suitably stored at the site or at another location agreed to in writing, the Application for Payment shall be accompanied by such bills of sale, data and other procedures satisfactory to OWNER substantiating OWNER's title to such materials or equipment or otherwise protecting OWNER's interest. Payment on account of such materials or equipment will not include any amount for CONTRACTOR's overhead or profit or relieve CONTRACTOR of its obligation to protect and install such materials or equipment in accordance with the requirements of the Contract and to restore damaged or defective Work. If materials or equipment are stored at another location, at the direction of the OWNER they shall be stored in a bonded and insured facility, accessible to E/A and OWNER, and shall be clearly marked as property of OWNER. Title to materials delivered to the site of the Work or a staging area will pass to OWNER upon payment by OWNER without the necessity for further documentation. Risk of loss will not pass to OWNER until acceptance.
- 14.1.5** Where the original Contract Amount is less than \$400,000, OWNER will pay CONTRACTOR total amount of approved Application for Payment, less ten percent (10%) of amount thereof, which ten percent (10%) will be retained until final payment, less all previous payments and less all other sums that may be retained by OWNER under the terms of this Agreement. Where the original Contract Amount is \$400,000 or more, OWNER will pay CONTRACTOR total amount of approved Application for Payment, less five percent (5%) of amount thereof, which five percent (5%) will be retained until final payment, less all previous payments and less all other sums that may be retained by OWNER under the terms of this Agreement. In either case, if the Work is near completion and delay occurs due to no fault or neglect of CONTRACTOR, OWNER may pay a portion of the retained amount to CONTRACTOR. CONTRACTOR, at OWNER's option, may be relieved of the obligation to complete the Work and, thereupon, CONTRACTOR shall receive payment of the balance due under the Contract subject to the conditions stated under paragraph 15.2. A Subcontractor may submit a written request to the CONTRACTOR and Project Manager requesting release of retainage for work by the Subcontractor that has been completed and approved. The Project Manager will evaluate the request and if it is approved, the Project Manager will request the CONTRACTOR to include the request for release of an appropriate amount of retainage in the next Pay Application.
- 14.1.6** Applications for Payment shall include the following documentation:
 - .1** updated Progress Schedule;
 - .2** monthly subcontractor report;
 - .3** any other documentation required under the Supplemental General Conditions.
- 14.2 CONTRACTOR's Warranty of Title:** CONTRACTOR warrants and guarantees that title to all Work, materials and equipment covered by any Application for Payment, whether

incorporated in the Project or not, will pass to OWNER free and clear of all Liens no later than the time of payment to CONTRACTOR.

14.3 Review of Applications for Progress Payment:

14.3.1 Owner's Representative will, within seven (7) calendar days after receipt of each Application for Payment, either indicate a recommendation for payment and forward the Application for processing by OWNER, or return the Application to CONTRACTOR indicating Owner's Representative's reasons for refusing to recommend payment. In the latter case, CONTRACTOR shall make the necessary corrections and resubmit the Application.

14.3.2 Owner's Representative's recommendation of any payment requested in an Application for Payment will constitute a representation by Owner's Representative, based upon Owner's Representative's on-site observations of the executed Work and on Owner's Representative's review of the Application for Payment and the accompanying data and schedules, that to the best of Owner's Representative's knowledge, information and belief:

- .1 the Work has progressed to the point indicated; and
- .2 the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, to the results of any subsequent tests called for in the Contract Documents, to a final determination of quantities and classifications for unit price Work, and to any other qualifications stated in the recommendation).

14.3.3 By recommending any such payment, Owner's Representative will not thereby be deemed to have represented that:

- .1 exhaustive or continuous on-site inspections have been made to check the quality or the quantity of the Work;
- .2 examination has been made to ascertain how or for what purpose CONTRACTOR has used money previously paid on account of the Contract Amount;
- .3 CONTRACTOR's construction means, methods, techniques, sequences or procedures have been reviewed; or
- .4 that there may not be other matters or issues between the parties that might entitle CONTRACTOR to be paid additionally by OWNER or entitle OWNER to withhold payment to CONTRACTOR.

14.4 Decisions to Withhold Payment:

14.4.1 OWNER may withhold or nullify the whole or part of any payment to such extent as may be necessary on account of:

- .1 defective Work not remedied;
- .2 third party Claims filed or reasonable evidence indicating probable filing of such Claims;
- .3 failure of CONTRACTOR to make payments properly to Subcontractors for labor, materials or equipment;
- .4 reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Amount;
- .5 damage to OWNER or another contractor;

- .6 reasonable evidence that the Work will not be completed within the Contract Time, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay;
- .7 failure of CONTRACTOR to submit a schedule of values in accordance with the Contract Documents;
- .8 failure of CONTRACTOR to submit a submittal schedule in accordance with the Contract Documents;
- .9 failure of CONTRACTOR to submit and update a construction Progress Schedule in accordance with the Contract Documents;
- .10 failure of CONTRACTOR to maintain a record of changes on drawings and documents;
- .11 failure of CONTRACTOR to maintain weekly payroll reports and, as applicable, provide copies of reports in a timely manner upon request of OWNER;
- .12 failure of CONTRACTOR to submit monthly subcontractor reports;
- .13 CONTRACTOR's neglect or unsatisfactory prosecution of the Work, including failure to clean up;
- .14 failure of CONTRACTOR to comply with the Austin City Code, Chapter 2-9-A, as amended, "Minority-Owned and Women-Owned Business Enterprise Procurement Program;" or
- .15 failure of CONTRACTOR to comply with any provision of the Contract Documents.

14.4.2 When the above reasons for withholding payment are removed, CONTRACTOR shall resubmit a statement for the value of Work performed. Payment will be made within thirty (30) calendar days of receipt of approved Application for Payment.

14.4.3 Subcontractors may request Partial Payment when the OWNER withholds payment of an invoice to the CONTRACTOR for any reason listed in Section 14.4.1. If payment is withheld by the OWNER, the CONTRACTOR shall notify all affected Subcontractors within two (2) working days of notice that payment is being withheld. Upon notification, Subcontractors may submit a formal written request for Partial Payment to the CONTRACTOR and OWNER. If directed by the OWNER, the CONTRACTOR shall within three (3) working days resubmit to the OWNER an invoice for the same period that includes only the work performed by the requesting Subcontractors during this period. The OWNER will review this resubmitted invoice in accordance with Section 14.3.1. Upon receipt of payment for the resubmitted invoice, CONTRACTOR shall pay the subcontractor within ten (10) Calendar Days in accordance with Section 6.4.7.

14.5 Delayed Payments: Should OWNER fail to make payment to CONTRACTOR of sum named in any Application for Payment within thirty (30) calendar days after the day on which OWNER received the mutually acceptable Application for Payment, then OWNER will pay to CONTRACTOR, in addition to sum shown as due by such Application for Payment, interest thereon at the rate specified in Government Code, Section 2251.025(b) from date due until fully paid, which shall fully liquidate any injury to CONTRACTOR growing out of such delay in payment.

14.6 Arrears: No money shall be paid by OWNER upon any claim, debt, demand or account whatsoever, to any person, firm or corporation who is in arrears to City for taxes; and City shall be entitled to counterclaim and automatically offset against any such debt, claim, demand or account in the amount of taxes so in arrears and no assignment or transfer of such debt, claim, demand or account after said taxes are due, shall affect the right of

OWNER to so offset said taxes, and associated penalties and interest if applicable, against the same.

14.7 Substantial Completion:

14.7.1 When the CONTRACTOR considers that the Work, or a portion thereof which the OWNER agrees to accept separately, is substantially complete, the CONTRACTOR shall notify Owner's Representative and request a determination as to whether the Work or designated portion thereof is substantially complete. If Owner's Representative does not consider the Work substantially complete, Owner's Representative will notify CONTRACTOR giving reasons therefor. After performing any required Work, CONTRACTOR shall then submit another request for Owner's Representative to determine Substantial Completion. If Owner's Representative considers the Work substantially complete, Owner's Representative will prepare and deliver a certificate of Substantial Completion which shall establish the date of Substantial Completion, shall include a punch list of items to be completed or corrected before final payment, shall establish the time within which CONTRACTOR shall finish the punch list, and shall establish responsibilities of the OWNER and CONTRACTOR for security, maintenance, heat, utilities, damage to the Work, warranty and insurance. Failure to include an item on the punch list does not alter the responsibility of CONTRACTOR to complete all Work in accordance with the Contract Documents. If a Certificate of Occupancy is required by public authorities having jurisdiction over the Work, said certificate shall be issued before the Work or any portion thereof is considered substantially complete. The certificate of Substantial Completion shall be signed by OWNER and CONTRACTOR to evidence acceptance of the responsibilities assigned to them in such certificate.

14.7.2 OWNER shall have the right to exclude CONTRACTOR from the Work after the date of Substantial Completion, but OWNER will allow CONTRACTOR reasonable access to complete or correct items on the punch list and complete warranty work.

14.8 Partial Utilization: Use by OWNER, at OWNER's option, of any substantially completed part of the Work which: (i) has specifically been identified in the Contract Documents, or (ii) OWNER and CONTRACTOR agree constitutes a separately functioning and usable part of the Work that can be used by OWNER for its intended purpose without significant interference with CONTRACTOR's performance of the remainder of the Work, may be accomplished prior to Substantial Completion of all the Work in accordance with the following:

14.8.1 OWNER at any time may request CONTRACTOR to permit OWNER to use any such part of the Work which OWNER believes to be ready for its intended use and substantially complete. If CONTRACTOR agrees that such part of the Work is substantially complete, CONTRACTOR shall certify to Owner's Representative that such part of the Work is substantially complete and request Owner's Representative to issue a certificate of substantial Completion for that part of the Work. CONTRACTOR at any time may notify Owner's Representative that CONTRACTOR considers any such part of the Work ready for its intended use and substantially complete and request Owner's Representative to issue a certificate of Substantial Completion for that part of the Work. The provisions of paragraphs 14.7.1 and 14.7.2 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.

14.8.2 Such partial utilization is authorized by public authorities having jurisdiction over the Work.

14.9 Final Inspection: Upon Written Notice from CONTRACTOR that the entire Work or an agreed portion thereof is complete, Owner's Representative will make a final inspection with CONTRACTOR and provide Written Notice of all particulars in which this inspection reveals

that the Work is incomplete or defective. CONTRACTOR shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

14.10 Final Application for Payment: CONTRACTOR may make application for final payment following the procedure for progress payments after CONTRACTOR has completed all such corrections to the satisfaction of Owner's Representative and delivered the following documents:

- 14.10.1** Affidavit by CONTRACTOR certifying the payment of all debts and claims;
- 14.10.2** Three (3) complete operating and maintenance manuals, each containing maintenance and operating instructions, schedules, guarantees, and other documentation required by the Contract Documents;
- 14.10.3** Record documents (as provided in paragraph 6.10);
- 14.10.4** Consent of surety, if any, to final payment. If surety is not provided, complete and legally effective releases or waivers (satisfactory to OWNER) of all claims arising out of or filed in connection with the Work;
- 14.10.5** Certificate evidencing that insurance required by the Supplemental General Conditions will remain in force after final payment and through the warranty period;
- 14.10.6** Non-Use of Asbestos Affidavit (After Construction);
- 14.10.7** Subcontractor report and all other documentation necessary for evaluation of CONTRACTOR's fulfillment of the Contract MBE/WBE or DBE goals;
- 14.10.8** Documentation of notice to claimants, to the extent applicable and subject to subparagraph 14.11.4;
- 14.10.9** Proof of performance Bond extension through warranty period, if a performance Bond was required; and
- 14.10.10** Any other documentation called for in the Contract Documents.

14.11 Final Payment and Acceptance:

- 14.11.1** If, on the basis of observation of the Work during construction, final inspection, and review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Owner's Representative is satisfied that the Work has been completed and CONTRACTOR's other obligations under the Contract Documents have been fulfilled and there are no outstanding claims, Owner's Representative will recommend the final Application for Payment and thereby notify the OWNER, who will pay to CONTRACTOR the balance due CONTRACTOR under the terms of the Contract. If the sole remaining unfinished item to complete the Work is the reestablishment of vegetation, CONTRACTOR may execute a revegetation letter with fiscal posted (letter of credit) to ensure completion of this item. This Work must be accomplished within one hundred twenty (120) Calendar Days of the date of Final Completion of the Work. When the permanent erosion control has been established, OWNER will initiate an inspection for final acceptance of the erosion controls. If the revegetation is not completed within the one hundred twenty (120) Calendar Days, OWNER, at its option, may complete the Work using the posted fiscal.
- 14.11.2** If the Contract measures Contract Time to Final Completion, rather than Substantial Completion, Owner's Representative will issue a letter of final acceptance to CONTRACTOR which establishes the Final Completion date and initiates the one-year warranty period. If the sole remaining unfinished item to complete the Work is the reestablishment of vegetation and CONTRACTOR has

executed a revegetation letter with fiscal posted (letter of credit) to ensure completion of this item, the Owner's Representative will issue a letter of conditional acceptance to CONTRACTOR which established the Final Completion date and initiates the one-year warranty period.

14.11.3 Final payment is considered to have taken place when CONTRACTOR or any of its representatives negotiates OWNER's final payment check, whether labeled final or not, for cash or deposits check in any financial institution for its monetary return.

14.11.4 The OWNER will withhold funds sufficient to cover the amount of any unresolved contract claims from final payment for six months under the following limited conditions:

- .1** CONTRACTOR must provide written notice to the claimant (via certified mail or hand delivery) that (i) OWNER will hold funds in the amount of the disputed claim for six (6) months from the date of the receipt of the notice and (ii) CONTRACTOR and the claimant have certain alternative dispute resolution rights; and
- .2** CONTRACTOR must provide OWNER with a copy of the receipted notice.

Provided the claimant has received notice under this section, OWNER will release the withheld funds, if the CONTRACTOR provides a bond in substantial compliance with the provisions of Section 52.231 of the Texas Property Code; when the OWNER receives a settlement or release of the claim with accompanying instructions regarding payment; upon resolution of the claim in litigation, if suit is filed within such six (6) month period and the OWNER receives written notice of such filing; or when such six (6) month period has passed, if no such bond, settlement, release, or notice of filing of suit have been received. The above provisions notwithstanding, if efforts to timely resolve a disputed claim are not being made to OWNER'S reasonable satisfaction, OWNER may, in its complete discretion, file an interpleader action and deposit the withheld funds in the registry of a court of competent jurisdiction. In addition, CONTRACTOR must include a provision in each of its subcontracts that the prevailing party in any litigation arising thereunder will be entitled to recover its costs of court and reasonable attorney's fees.

14.12 Waiver of Claims: The making and acceptance of final payment will constitute:

14.12.1 a waiver of claims by OWNER against CONTRACTOR, except claims arising from unsettled claims, from defective Work appearing after final inspection, from failure to comply with the Contract Documents or the terms of any warranty specified therein, or from CONTRACTOR's continuing obligations under the Contract Documents; and

14.12.2 a waiver of all claims by CONTRACTOR against OWNER other than those previously made in writing and still unsettled.

ARTICLE 15 - SUSPENSION OF WORK AND TERMINATION

15.1 OWNER May Suspend Work Without Cause: At any time and without cause, OWNER may suspend the Work or any portion thereof for a period of not more than ninety (90) calendar days by Written Notice to CONTRACTOR which will fix the date on which the Work will be resumed. CONTRACTOR shall resume the Work on the date so fixed. CONTRACTOR shall be allowed an adjustment in the Contract Amount or an extension of the Contract Times, or both, directly attributable to any such suspension if CONTRACTOR makes an approved Claim therefor as provided in Articles 11 and 12.

15.2 OWNER May Terminate Without Cause: Upon seven (7) calendar days' Written Notice to CONTRACTOR, OWNER may, without cause and without prejudice to any right or remedy of OWNER, elect to terminate the Agreement. In such case, CONTRACTOR shall be paid (without duplication of any items):

- 15.2.1** for completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination;
- 15.2.2** for reasonable demobilization costs;
- 15.2.3** for anticipated profits on completed and accepted Work not previously paid and not included in separate pay items calculated to date of termination but not for anticipated profit on the entire Contract not previously paid, unabsorbed overhead, or lost opportunity; and
- 15.2.4** for all claims incurred in settlement of terminated contracts with Subcontractors, Suppliers and others, including for anticipated profits on completed and accepted Work not previously paid and not included in separate pay items calculated to date of termination but not for anticipated profit on the entire Contract not previously paid, unabsorbed overhead, or lost opportunity. CONTRACTOR agrees to negotiate in good faith with Subcontractors, Suppliers and others to mitigate OWNER's cost.

15.3 OWNER May Terminate With Cause:

15.3.1 Upon the occurrence of any one or more of the following events:

- .1** if CONTRACTOR persistently fails to perform the Work in accordance with the Contract Documents;
- .2** if CONTRACTOR disregards laws or regulations of any public body having jurisdiction;
- .3** if CONTRACTOR disregards the authority of Owner's Representative;
- .4** if CONTRACTOR makes fraudulent statements;
- .5** if CONTRACTOR fails to maintain a work force adequate to accomplish the Work within the Contract Time;
- .6** if CONTRACTOR fails to make adequate progress and endangers successful completion of the Contract; or
- .7** if CONTRACTOR otherwise violates in any substantial way any provisions of the Contract Documents;

OWNER may, after giving CONTRACTOR (and the surety, if any) seven (7) calendar days Written Notice terminate the services of CONTRACTOR. OWNER, at its option, may proceed with negotiation with surety for completion of the Work. Alternatively, OWNER may under these circumstances exclude CONTRACTOR from the site and take possession of the Work (without liability to CONTRACTOR for trespass or conversion), incorporate in the Work all materials and equipment stored at the site or for which OWNER has paid CONTRACTOR but which are stored elsewhere, and finish the Work as OWNER may deem expedient. In such case CONTRACTOR shall not be entitled to receive any further payment until the Work is finished. If the unpaid balance of the Contract Amount exceeds all claims, costs, losses and damages sustained by OWNER arising out of or resulting from completing the Work, such excess will be paid to CONTRACTOR. If such claims, costs, losses and damage exceed such unpaid balance, CONTRACTOR or surety shall pay the difference to OWNER. In the event that a termination for cause is found to be wrongful, the termination shall be converted to a termination without

cause as set forth in Section 15.2 and CONTRACTOR'S remedy for wrongful termination is limited to the recovery of the payments permitted for termination without cause as set forth in Section 15.2.

- 15.3.2** Where CONTRACTOR's services have been so terminated by OWNER, the termination will not affect any rights or remedies of OWNER against CONTRACTOR and surety then existing or which may thereafter accrue. Any retention or payment of moneys due CONTRACTOR by OWNER will not release CONTRACTOR from liability. In the event OWNER terminates Contract with cause, OWNER may reject any and all Bids submitted by CONTRACTOR for up to three (3) years after the date of such termination. These sanctions will be administered in accordance with the City of Austin Purchasing Office Probation, Suspension, and Debarment Procedures for Vendors, which include notice and an opportunity for a hearing.

- 15.4 CONTRACTOR May Stop Work or Terminate:** If through no act or fault of CONTRACTOR, the Work is suspended for a period of more than ninety (90) calendar days by OWNER or under an order of court or other public authority, or (except during disputes) Owner's Representative fails to forward for processing any mutually acceptable Application for Payment within thirty (30) calendar days after it is submitted, or (except during disputes) OWNER fails for sixty (60) calendar days after it is submitted to pay CONTRACTOR any sum finally determined by OWNER to be due, then CONTRACTOR may, upon seven (7) calendar days' Written Notice to OWNER, and provided OWNER does not remedy such suspension or failure within that time, terminate the Agreement and recover from OWNER payment on the same terms as provided in paragraph 15.2. In lieu of terminating the Agreement and without prejudice to any other right or remedy, if (except during disputes) Owner's Representative has failed to forward for processing any mutually acceptable Application for Payment within thirty (30) calendar days after it is submitted, or (except during disputes) OWNER has failed for sixty (60) calendar days after it is submitted to pay CONTRACTOR any sum finally determined by OWNER to be due, CONTRACTOR may upon seven (7) calendar days' Written Notice to OWNER stop the Work until payment of all such amounts due CONTRACTOR, including interest thereon. The provisions of this paragraph 15.4 are not intended to preclude CONTRACTOR from making a Claim under Articles 11 and 12 for an increase in Contract Amount or Contract Times or otherwise for expenses or damage directly attributable to CONTRACTOR's stopping Work as permitted by this paragraph.

- 15.5 Discretionary Notice to Cure:** In its complete discretion, OWNER may, but is not required to, provide a Notice to Cure to CONTRACTOR and its surety to cure an event of default described above and/or an anticipatory breach of contract and, if required by OWNER, to attend a meeting with OWNER, regarding the Notice to Cure, the event of default, and/or the anticipatory breach of contract. The Notice to Cure will set forth the time limit in which the cure is to be completed or commenced and diligently prosecuted. Upon receipt of any Notice to Cure, CONTRACTOR shall prepare a report describing its program and measures to affect the cure of the event of default and/or anticipatory breach of contract within the time required by the Notice to Cure. The CONTRACTOR'S report must be delivered to OWNER at least three (3) days prior to any requested meeting with the OWNER and surety.

- 15.6 Bankruptcy:** If CONTRACTOR declares bankruptcy or is adjudged bankrupt or makes an assignment for the benefit of creditors or if a receiver is appointed for the benefit of creditors or if a receiver is appointed by reason of CONTRACTOR'S insolvency, CONTRACTOR may be unable to perform this Contract in accordance with the Contract requirements. In such an event, OWNER may demand CONTRACTOR or its successor in interest provide OWNER with adequate assurance of CONTRACTOR'S future performance in accordance with the terms and conditions of the Contract. If CONTRACTOR fails to provide adequate assurance of future performance to OWNER'S reasonable satisfaction within ten (10) days of such a request, OWNER may terminate the CONTRACTOR'S services for cause or without cause, as set forth above. If CONTRACTOR fails to provide timely adequate

assurance of its performance and actual performance, OWNER may prosecute the Work with its own forces or with other contractors on a time and material or other appropriate basis and the cost of which will be charged against the Contract balance.

- 15.7 Duty to Mitigate:** In the event of any termination or suspension under this Contract, the CONTRACTOR agrees to and shall take all reasonable actions to mitigate its damages and any and all claims which may be asserted against the OWNER.
- 15.8 Responsibility during Demobilization:** While demobilizing, the CONTRACTOR will take all necessary and reasonable actions to preserve and protect the Work, the site and other property of the OWNER or others at the site.

ARTICLE 16 - DISPUTE RESOLUTION

16.1 Filing of Claims:

- 16.1.1** Claims arising from the circumstances identified in paragraphs 3.2, 4.1, 4.2.2, 4.2.4, 6.4.2, 6.11.5.2, 6.17, 7.5, 8.6, 9.5, 10.4.2, 13.4.3, 13.8, 13.9, 15.1, 15.2, 15.3, or 15.4, or other occurrences or events, shall be made by Written Notice delivered by the party making the Claim to the other party within thirty (30) calendar days after the start of the occurrence or event giving rise to the Claim and stating the general nature of the Claim. Notice of the amount of the Claim with supporting data shall be delivered in writing within thirty (30) calendar days after Written Notice of Claim is delivered by claimant and shall represent that the adjustment claimed covers all known amounts and/or extensions of time to which claimant is entitled.
- 16.1.2** Within thirty (30) calendar days of receipt of notice of the amount of the Claim with supporting data, Owner's Representative and CONTRACTOR shall meet to discuss the Claim, after which an offer of settlement or notification of no settlement offer will be made to claimant. If claimant is not satisfied with the proposal presented, claimant shall have thirty (30) calendar days in which to: (i) submit additional supporting data requested by the other party; (ii) modify the initial Claim; or (iii) request Alternative Dispute Resolution.

16.2 Alternative Dispute Resolution:

- 16.2.1** If a dispute exists concerning a Claim, the parties agree to use the following procedure prior to pursuing any other available remedies. OWNER reserves the right to include the E/A as a party.
- 16.2.2** Negotiating with Previously Uninvolved Personnel: Either party may make a written request for a meeting to be held between representatives of each party within fourteen (14) Calendar Days of the request or such later period that the parties may agree to. Each party shall endeavor to include, at a minimum, one (1) previously uninvolved senior level decision maker (an owner, officer, or employee of each organization) empowered to negotiate on behalf of their organization. If a previously uninvolved senior level decision maker is unavailable due to the size of the CONTRACTOR'S organization or any other reason, the CONTRACTOR shall nonetheless provide an appropriate senior level decision maker for the meeting. The purpose of this and any subsequent meetings will be good faith negotiations of the matters constituting the dispute. Negotiations shall be concluded within thirty (30) Calendar Days of the first meeting, unless mutually agreed otherwise. This step may be waived by a written agreement signed by both parties, in which event the parties may proceed directly to mediation as described below.

16.2.3 Mediation:

- .1 If the procedure described in 16.2.2 proves unsuccessful or is waived pursuant to its terms, the parties shall initiate the mediation process. OWNER and CONTRACTOR agree to select within thirty (30) calendar days a mediator trained in mediation skills, to assist with resolution of the dispute. OWNER and CONTRACTOR agree to act in good faith in the selection of the mediator and to give consideration to qualified individuals nominated to act as mediator. Nothing in this agreement prevents the parties from relying on the skills of a person who also is trained in the subject matter of the dispute and/or a contract interpretation expert. Should the parties fail to agree on a mediator within thirty (30) calendar days of initiation of the mediation process, the parties agree to ask the Travis County Dispute Resolution Center to select a qualified individual, which selection shall be binding on the parties.
- .2 Mediation is a forum in which an impartial person, the mediator, facilitates communication between parties to promote reconciliation, settlement, or understanding among them. The parties hereby agree that mediation, at a minimum, shall provide for (i) conducting an on-site investigation, if appropriate, by the mediator for fact gathering purposes, (ii) a meeting of all parties for the exchange of points of view and (iii) separate meetings between the mediator and each party to the dispute for the formulation of resolution alternatives. The parties agree to participate in mediation in good faith for up to thirty (30) calendar days from the date of the first mediation session, unless mutually agreed otherwise. Should the parties fail to reach a resolution of the dispute through mediation, then each party is released to pursue other remedies available to them.

16.3 Resolution of Disputes between Contractor and Subcontractor or Supplier: If a dispute exists concerning a claim between a CONTRACTOR and a Subcontractor or Supplier, the CONTRACTOR agrees to participate with such Subcontractor and/or Supplier in a process substantially paralleling the steps set out in paragraphs 16.1 and 16.2 above, including the delivery of written notices, submission of supporting data, negotiation with previously uninvolved personnel, and, if such alternative dispute resolution process is unsuccessful, mediation between the parties to the claim. If the CONTRACTOR and Subcontractor or Supplier agreement provides an alternative dispute resolution process, which provides substantially equivalent rights to those set forth herein, it may be followed, unless the CONTRACTOR and affected Subcontractor or Supplier agree to follow the process outlined above. The OWNER is not a party to the alternative dispute resolution process between the CONTRACTOR and Subcontractor or Supplier and will not pay any costs incurred in the process. Each party will be responsible for its own expenses incurred in the process, which will include an equal share of the mediation expenses, unless otherwise determined by the mediator. NOTICE: THE PROCESS SET FORTH HEREIN IS NOT A SUBSTITUTE FOR THE STATUTORY PAYMENT BOND CLAIM PROCESS.

16.4 Claim Calculation:

- 16.4.1 Delay Claims:** The intent of paying for delay damages is to reimburse the CONTRACTOR for actual expense arising out of a compensable delay. No profit or force account markups, other than labor burden, will be allowed for delay claims by the CONTRACTOR seeking reimbursement for expenses arising out of an alleged event of delay. No consequential damages will be allowed to the CONTRACTOR in connection with any claimed delays. If the CONTRACTOR requests compensation for delay damages and the delay is determined to be compensable, then standby equipment costs and project overhead compensation will be based on the duration of the compensable delay and the following:

- .1 Standby equipment costs will not be allowed during periods when the equipment would have otherwise been idle. Standby equipment time will not exceed more than eight (8) hours per twenty-four (24) hour day, forty (40) hours per week, and one hundred seventy-six (176) hours per month. Standby equipment costs will be paid at 50 percent (50%) of the applicable Rental Rate Blue Book rates and calculated by dividing the monthly rate by one hundred seventy-six (176), multiplying the result by the number of standby hours and multiplying that number by the regional adjustment factor and the rate adjustment factor contained in the Blue Book. Operating costs will not be allowed.
- .2 Project overhead will be determined from actual costs that the CONTRACTOR will be required to document. Project overhead is defined as the administrative and supervisory expenses incurred at the work site and will not include home office overhead.

16.4.2 General: Except as limited with respect to delay claims, as set forth above, the criteria set forth in Section 11.4.1 may be used as a basis to calculate an adjustment in the Contract Amount in the resolution of a claim, provided that there will be no compensation for home office overhead.

16.5 MBE/WBE Program Progressive Sanctions: CONTRACTOR is subject to progressive sanctions for failure of CONTRACTOR to comply with Austin City Code, Chapter 2-9A, as amended: "Minority-owned and Women-owned Business Enterprise Procurement Program." Available sanctions for Program violations are set forth in Program rules adopted by the Small and Minority Business Resources Department (SMBR), as amended, and may include the following progressive sanctions for Program violations within a rolling 24-month period: (i) a period of probation for up to six (6) months for the first violation (ii) a period of suspension from bidding for up to 24 months for the second violation, and (iii) a period of debarment for up to five (5) years for the third violation. If the CONTRACTOR engages in more than one of the violations listed below at any given time, OWNER has the discretion to determine whether such actions should be counted as multiple violations of the MBE/WBE Ordinance. Program violations include:

- .1 providing false or misleading information to the OWNER in connection with the submission of a Bid, responses to request for qualifications or Proposals, Good Faith Efforts documentation, post award compliance or other Program operations;
- .2 substituting M/WBE Subcontractors without first receiving approval for such substitutions;
- .3 failure to comply with the approved Compliance Plan without an approved request for a change, an approved Change Order or other approved change to the Contract;
- .4 violation of any other provision of the "Minority-owned and Women-owned Business Enterprise Procurement Program";
- .5 providing false or misleading information to the OWNER in connection with an application for or challenge to certification, recertification or decertification as a MBE/WBE; and
- .6 bid shopping.

The Progressive Sanctions will be administered in accordance with the City of Austin Purchasing Office Probation, Suspension, and Debarment Procedures for Vendors, which includes notice and an opportunity for a hearing.

ARTICLE 17 – MISCELLANEOUS

- 17.1 Venue:** In the event of any suit at law or in equity involving the Contract, venue shall be exclusively in Travis County, Texas and the laws of the State of Texas shall apply to the interpretation and enforcement of the Contract.
- 17.2 Extent of Agreement:** This Contract represents the entire and integrated agreement between the OWNER and CONTRACTOR with respect to the subject matter hereof and supersedes all prior negotiations, representations or agreements, either written or oral.
- 17.3 Cumulative Remedies:** The rights and remedies available to the parties are not to be construed in any way as a limitation of any rights and remedies available to any or all of them which are otherwise imposed or available by laws or regulations, by special warranty or guarantees or by other provisions of the Contract Documents, and the provisions of this paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right and remedy to which they apply. Specifically, the OWNER is not required to only assess liquidated damages, and OWNER may elect to pursue its actual damages resulting from the failure of the CONTRACTOR to complete the Work in accordance with the requirements of the Contract Documents.
- 17.4 Severability:** If any word, phrase, clause, sentence or provision of the Contract, or the application of same to any person or set of circumstances is for any reason held to be unconstitutional, invalid or unenforceable, that finding shall only effect such word, phrase, clause, sentence or provision, and such finding shall not affect the remaining portions of this Contract; this being the intent of the parties in entering into the Contract; and all provisions of the Contract are declared to be severable for this purpose.
- 17.5 Independent Contractor:** The Contract shall not be construed as creating an employer/employee relationship, a partnership, or a joint venture. CONTRACTOR is an independent contractor and CONTRACTOR's services shall be those of an independent contractor. CONTRACTOR agrees and understands that the Contract does not grant any rights or privileges established for employees of OWNER.
- 17.6 Prohibition of Gratuities:** OWNER may, by Written Notice to CONTRACTOR, terminate the Contract without liability if it is determined by OWNER that gratuities were offered or given by CONTRACTOR or any agent or representative of CONTRACTOR to any officer or employee of OWNER with a view toward securing the Contract or securing favorable treatment with respect to the awarding or amending or the making of any determinations with respect to the performing of such Contract. In the event the Contract is terminated by OWNER pursuant to this provision, OWNER shall be entitled, in addition to any other rights and remedies, to recover or withhold the amount of the cost incurred by CONTRACTOR in providing such gratuities.
- 17.7 Prohibition Against Personal Interest in Contracts:** No officer, employee, independent consultant, or elected official of OWNER who is involved in the development, evaluation, or decision-making process of the performance of any solicitation shall have a financial interest, direct or indirect, in the Contract resulting from that solicitation. Any violation of this provision, with the knowledge, expressed or implied, of CONTRACTOR shall render the Contract voidable by OWNER.
- 17.8 OWNER'S Right to Audit:**
- 17.8.1** Records means all records generated by or on behalf of CONTRACTOR and each Subcontractor and Supplier of CONTRACTOR, whether paper, electronic, or other

media, which are in any way related to performance of or compliance with this Contract, including, without limitation:

- .1 accounting records;
- .2 written policies and procedures;
- .3 subcontract files (including proposals of successful and unsuccessful Bidders, Bid recaps, etc.);
- .4 original estimates and estimating work sheets;
- .5 correspondence;
- .6 Change Order files (including documentation covering negotiated settlements);
- .7 back charge logs and supporting documentation;
- .8 general ledger entries detailing cash and trade discounts earned, insurance rebates and dividends;
- .9 lump sum agreements between CONTRACTOR and any Subcontractor or Supplier;
- .10 records necessary to evaluate: Contract compliance, Change Order pricing, and any Claim submitted by CONTRACTOR or any of its payees; and
- .11 any other CONTRACTOR record that may substantiate any charge related to this Contract.

17.8.2 CONTRACTOR shall allow OWNER'S agent or its authorized representative to inspect, audit, and/or reproduce, or all three, all Records generated by or on behalf of CONTRACTOR and each Subcontractor and Supplier, upon OWNER'S written request. Further, CONTRACTOR shall allow OWNER'S agent or authorized representative to interview any of CONTRACTOR'S employees, all Subcontractors and all Suppliers, and all their respective employees.

17.8.3 CONTRACTOR shall retain all its Records, and require all its Subcontractors and Suppliers to retain their respective Records, during this Contract and for three (3) years after final payment, until all audit and litigation matters that OWNER has brought to the attention of CONTRACTOR are resolved, or as otherwise required by law, whichever is longer. OWNER'S right to inspect, audit, or reproduce Records, or interview employees of CONTRACTOR or its respective Subcontractors or Suppliers exists during this Contract, and for three (3) years after final payment, until all audit and litigation matters that OWNER has brought to CONTRACTOR'S attention are resolved, or as otherwise required by law, whichever is longer, and at no cost to OWNER, either from CONTRACTOR or any of its Subcontractors or Suppliers that may furnish Records or make employees available for interviewing.

17.8.4 CONTRACTOR must provide sufficient and accessible facilities during its normal business hours for OWNER to inspect, audit, or reproduce Records, or all three, and to interview any person about the Records.

17.8.5 CONTRACTOR shall insert these requirements in each written contract between CONTRACTOR and any Subcontractor or Supplier and require each Subcontractor and Supplier to comply with these provisions.

17.9 Survival: The terms and conditions of this Contract, which contemplate a period of time beyond completion or termination will survive such completion or termination and not be merged therein or otherwise terminated.

17.10 No Waiver: The waiver of any provision of this Contract will not be deemed to be a waiver of any other provision of this Contract. No waiver of any provision of this Contract will be deemed to constitute a continuing waiver unless expressly provided in writing, nor will a waiver of any default be deemed a waiver of any subsequent defaults of the same type. The failure at any time to enforce this Contract, whether the default is known or not, shall not constitute a waiver or estoppel of the right to do so.

17.11 Conditions Precedent to Right to Sue: Notwithstanding anything herein to the contrary, the CONTRACTOR will have at least 90 days to give notice of a claim for damages as a condition precedent to the right to sue on the Contract, subject to the contractual claim and alternative dispute resolution processes set forth herein.

17.12 Waiver of Trial by Jury: OWNER and CONTRACTOR agree that they have knowingly waived the right to trial by jury and have instead agreed that, in the event of any litigation arising out of or connected to this Contract, to proceed with a trial before the court, unless both parties subsequently agree otherwise in writing.

17.13 Contractor Evaluation: The Owner will review and evaluate the Contractor's Work and performance on the Project and provide the Contractor with a written Contractor Evaluation Report in accordance with City of Austin Administrative Rule R161-13.37. Rule R161-13.37 provides an appeal process.

<http://www.austintexas.gov/departments/contract-management>

End

SUPPLEMENTAL GENERAL CONDITIONS

Section 00810

The Supplemental General Conditions contained herein amend or supplement the General Conditions, Section 00700.

ARTICLE 1 – DEFINITIONS

Add to the following definition:

1.20 Engineer/Architect (E/A): The OWNER's design professional for this contract is:

Name: Stephen W. Foster, PE
Wiss, Janney, Elstner Associates, Inc.
Address: 9511 N. Lake Creek Pkwy, Austin, Texas

Add the following definition:

1.51 Allowance - Allowance is defined as "a not-to-be-exceeded amount", either individually or in the aggregate, which is established between the Owner and the Contractor as part of its Bid Proposal when the precise scope of a particular line item(s) has not been defined to a level which is adequate for the Contractor to provide a definitive line item pricing for that particular scope of Work. The use of any Allowances by the Contractor will be subject to the Owner's sole approval and it is the Owner's intent to minimize the use of Allowances to the fullest extent possible. For any Allowances which the Owner allows the Contractor to use, the following rules shall apply: (i) Allowances shall cover the cost to the Contractor of the Cost of Work; (ii) Contractor's overhead and profit associated with the stated Allowance shall be included in the Allowance; and (iii) upon completion of the portion of the Work subject to an Allowance, the Contract Amount for that portion of the Work will be adjusted based upon the approved actual cost of the Work, which will not exceed the approved aggregate amount of the Allowances.

ARTICLE 2 - PRELIMINARY MATTERS

2.4 Before Starting Construction:

Delete 2.4.2.6 and replace with the following (changes to the original text are identified by underlining):

.6 A preliminary schedule of values for all of the Work. This schedule of values shall be organized by Subcontractor, with each item of Work to be performed by that Subcontractor broken out under the Subcontractor's name, and shall be subdivided in sufficient detail to serve as the basis for progress payments during construction. At a minimum, each trade shall be split between materials and labor. Prices will include an appropriate amount of overhead and profit applicable to each item of Work.

ARTICLE 4 - AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; REFERENCE POINTS

4.1 Availability of Lands: *Add the following to the end of the paragraph:*

CONTRACTOR shall contact OWNER's Transportation Department to obtain a Temporary Use of Right-of-Way Permit prior to beginning construction on any sidewalk/driveway or occupying any parking area/meters within the public right-of-ways.

ARTICLE 5 - BONDS AND INSURANCE

5.3 Other Bond and Insurance Requirements:

5.3.1 CONTRACTOR Provided Insurance

5.3.1.1 General Requirements.

.1 CONTRACTOR shall carry insurance in the types and amounts indicated below for the duration of the Contract, which shall include items owned by OWNER in the care, custody and control of CONTRACTOR prior to and during construction and warranty period.

.2 CONTRACTOR must complete and forward the Certificate of Insurance, Section 00650, to OWNER before the Contract is executed as verification of coverage required below. CONTRACTOR shall not commence Work until the required insurance is obtained and until such insurance has been reviewed by OWNER. Approval of insurance by OWNER shall not relieve or decrease the liability of CONTRACTOR hereunder and shall not be construed to be a limitation of liability on the part of CONTRACTOR. CONTRACTOR must also complete and forward the Certificate of Insurance, Section 00650, to OWNER whenever a previously identified policy period has expired as verification of continuing coverage.

.3 CONTRACTOR's insurance coverage is to be written by companies authorized to do business in the State of Texas at the time the policies are issued and shall be written by companies with A.M. Best ratings of B+VII or better, except for hazardous material insurance which shall be written by companies with A.M. Best ratings of A- or better.

.4 All endorsements naming the OWNER as additional insured, waivers, and notices of cancellation endorsements as well as the Certificate of Insurance shall indicate: City of Austin, Capital Contracting Office, P.O. Box 1088, Austin, Texas 78767.

.5 The "other" insurance clause shall not apply to the OWNER where the OWNER is an additional insured shown on any policy. It is intended that policies required in the Contract, covering both OWNER and CONTRACTOR, shall be considered primary coverage as applicable.

.6 If insurance policies are not written for amounts specified below, CONTRACTOR shall carry Umbrella or Excess Liability Insurance for any differences in amounts specified. If Excess Liability Insurance is provided, it shall follow the form of the primary coverage.

.7 OWNER shall be entitled, upon request and without expense, to receive certified copies of policies and endorsements thereto and may make any reasonable requests for deletion or revision or modification of particular policy terms, conditions, limitations, or exclusions except where policy provisions are established by law or regulations binding upon either of the parties hereto or the underwriter on any such policies.

.8 OWNER reserves the right to review the insurance requirements set forth during the effective period of this Contract and to make reasonable adjustments to insurance coverage, limits, and exclusions when deemed necessary and prudent by OWNER based upon changes in statutory law, court decisions, the claims history of the industry or financial condition of the insurance company as well as CONTRACTOR.

.9 CONTRACTOR shall not cause any insurance to be canceled nor permit any insurance to lapse during the term of the Contract or as required in the Contract.

Bidding Requirements, Contract Forms and Conditions of the Contract

.10 CONTRACTOR shall be responsible for premiums, deductibles and self-insured retentions, if any, stated in policies. All deductibles or self-insured retentions shall be disclosed on the Certificate of Insurance.

.11 CONTRACTOR shall provide OWNER thirty (30) days written notice of erosion of the aggregate limits below occurrence limits for all applicable coverages indicated within the Contract.

.12 If OWNER owned property is being transported or stored off-site by CONTRACTOR, then the appropriate property policy will be endorsed for transit and storage in an amount sufficient to protect OWNER's property.

.13 The insurance coverages required under this contract are required minimums and are not intended to limit the responsibility or liability of CONTRACTOR.

5.3.1.2 Business Automobile Liability Insurance. Provide coverage for all owned, non-owned and hired vehicles. The policy shall contain the following endorsements in favor of OWNER:

- a) Waiver of Subrogation endorsement CA 0444;
- b) 30 day Notice of Cancellation endorsement CA 0244; and
- c) Additional Insured endorsement CA 2048.

Provide coverage in the following types and amounts:

.1 A minimum combined single limit of \$500,000 per occurrence for bodily injury and property damage. Alternate acceptable limits are \$250,000 bodily injury per person, \$500,000 bodily injury per occurrence and at least \$100,000 property damage liability each accident.

5.3.1.3 Workers' Compensation And Employers' Liability Insurance. Coverage shall be consistent with statutory benefits outlined in the Texas Workers' Compensation Act (Section 401). CONTRACTOR shall assure compliance with this Statute by submitting two (2) copies of a standard certificate of coverage (e.g. ACCORD form) to Owner's Representative for every person providing services on the Project as acceptable proof of coverage. The Certificate of Insurance, Section 00650, must be presented as evidence of coverage for CONTRACTOR. CONTRACTOR's policy shall apply to the State of Texas and include these endorsements in favor of OWNER:

- a) Waiver of Subrogation, form WC 420304; and
- b) 30 day Notice of Cancellation, form WC 420601.

The minimum policy limits for Employers' Liability Insurance coverage shall be as follows:

.1 \$100,000 bodily injury per accident, \$500,000 bodily injury by disease policy limit and \$100,000 bodily injury by disease each employee.

5.3.1.4 Commercial General Liability Insurance. The Policy shall contain the following provisions:

- a) Contractual liability coverage for liability assumed under the Contract and all contracts relative to this Project.

Bidding Requirements, Contract Forms and Conditions of the Contract

- b) Completed Operations/Products Liability for the duration of the warranty period.
- c) Explosion, Collapse and Underground (X, C & U) coverage.
- d) Independent Contractors coverage (Contractors/ Subcontractors work).
- e) Aggregate limits of insurance per project, endorsement CG 2503.
- f) OWNER listed as an additional insured, endorsements CG 2010 and CG 2037 or equivalent.
- g) 30 day notice of cancellation in favor of OWNER, endorsement CG 0205.
- h) Waiver of Transfer of Recovery Against Others in favor of OWNER, endorsement CG 2404.

Provide coverages A&B with minimum limits as follows:

- .1** A combined bodily injury and property damage limit of \$500,000 per occurrence.

5.3.1.5 Builders' Risk Insurance. CONTRACTOR shall maintain Builders' Risk Insurance or Installation Insurance on an all risk physical loss form in the Contract Amount. Coverage shall continue until the Work is accepted by OWNER. OWNER shall be a loss payee on the policy. If off-site storage is permitted, coverage shall include transit and storage in an amount sufficient to protect property being transported or stored.

5.3.1.6 Professional Liability Insurance. For Work which requires professional engineering or professional survey services to meet the requirements of the Contract, including but not limited to excavation safety systems, traffic control plans, and construction surveying, the CONTRACTOR or Subcontractors, responsible for performing the professional services shall provide Professional Liability Insurance with a minimum limit of \$500,000 per claim and in the aggregate to pay on behalf of the assured all sums which the assured shall become legally obligated to pay as damages by reason of any negligent act, error, or omission committed with respect to all professional services provided in due course of the Work of this Contract. CONTRACTOR's policy shall include the following endorsement in favor of the OWNER:

- a) 30 day Notice of Cancellation endorsement CA 0244

ARTICLE 6 - CONTRACTOR'S RESPONSIBILITIES

6.6 Permits, Fees: *Add the following:*

OWNER will obtain and pay for the following permits, licenses and/or fees:

6.6.1 Site Development Permit.

6.6.2 Building Permit(s). OWNER's responsibility for obtaining and paying for the Building Permit(s) shall be limited to the following where applicable: the required Electrical Service (Aid of Construction) Fee, Water and Wastewater Tap Fees, Water and Wastewater Capital Recovery Fees, and Septic Permit Fee. The OWNER's responsibility for obtaining and paying for the Building Permit(s) excludes securing and paying for the following where applicable: Driveway Permit (Concrete) Fee, Electrical Permit, Mechanical Permit, Plumbing Permit, Water Engineering Inspection Fee, Temporary Use of Right-of Way Permit, the gas company's Gas Yard Line Contribution Fee, and any other permits/fees not listed above.

ARTICLE 11 - CHANGE OF CONTRACT AMOUNT

11.4 Determination of Value of Work: *Add the following to paragraph 11.4.1.2:*

In the case of a Change Order determined by a mutually agreed lump sum or unit price properly itemized and supported by sufficient substantiating data, including documentation by subcontractors performing the work, to permit evaluation, the following method may be used:

COMPONENT ONE - The R.S. Means Co., Inc. 'Building Construction Cost Data' - latest edition - will be used as a basis for evaluating:

- 1a - the cost of labor (base rate, including fringe benefits),
- 1b - the cost of material and equipment to be incorporated in the Work, and
- 1c - the cost of tools, equipment and facilities necessary to accomplish the Work described in the change.

COMPONENT TWO - The costs of payroll taxes and insurance, Liability and Builder's Risk Insurance, shall be calculated as follows:

2a - Payroll taxes and Workers' Compensation Insurance: 25% of payroll (Item 1a)

2b - Liability and Builder's Risk Insurance: 2% of "total costs" (Items 1a, 1b, 1c, and 2a)

COMPONENT THREE - Overhead and profit shall be calculated as follows:

3a - For Subcontractors and for those portions of the Work performed by CONTRACTOR's own forces:

15% of the first \$10,000.00 of costs and 10% of the balance over \$10,000.00.
("costs" = Items 1a, 1b, and 1c, above, broken down into Contractor and Subcontractor costs).

3b - For the CONTRACTOR for that portion of the Work performed by Subcontractors:

10% of the first \$10,000.00 of the Subcontractor costs and 7.5% of the balance over \$10,000.00.

("costs" = Items 1a, 1b, and 1c, above, broken down into Subcontractor costs)

COMPONENT FOUR - Bonds

Performance and Payment Bond according to the following table ("TOTAL COST" = Items 1a, 1b, 1c, 2a, 2b, 3a, and 3b):

DOLLAR VALUE OF CONTRACT			% OF TOTAL COST OF CHANGE ORDER ADDED FOR BOND EXPENSE	
\$100,000	OR	LESS		2.5
\$100,001	THRU	\$500,000		1.5
\$500,001	THRU	\$2,500,000		1.0
\$2,500,001	THRU	\$5,000,000		0.75
\$5,000,001	THRU	\$7,500,000		0.70
OVER \$7,500,000				0.65

Bidding Requirements, Contract Forms and Conditions of the Contract

a) The total costs for the change, whether additive or deductive, shall be the sum total of COMPONENTS ONE - FOUR.

ARTICLE 13 - TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

13.7 Warranty Period: *Add the following:*

13.7.5 OWNER will utilize a "Warranty Item Form" (attached at the end of this Section) for the purpose of providing Written Notice of warranty defects to CONTRACTOR. CONTRACTOR shall date, sign, complete and return the form to OWNER when the defect is corrected, including such information on or attached to the form to describe the nature of the repairs or corrections that were made. If the defect cannot be corrected in seven (7) Calendar Days, CONTRACTOR shall provide a written explanation to the Owner's Representative describing the repairs needed and the time required to complete the repairs.

ARTICLE 14 - PAYMENTS TO CONTRACTOR AND COMPLETION

14.1 Application for Progress Payment: *Delete 14.1.6.3 and replace with the following:*

.3 Time Extension Request.

WARRANTY ITEM NO. _____ (PROJECT NAME)

The General Conditions of the Contract require that Warranty Defects be corrected within 7 days after written notice is received.

TO: _____
contractor name address / telephone / fax / email

ATTENTION OF: _____

FROM: _____
project manager name / address / telephone / fax / email

PROJECT: _____
name / location / CIP ID number

END OF TWO YEAR WARRANTY: _____

SUBJECT: _____

[] If checked, the damage requires immediate attention. The Contractor has been called.
[] If checked, the Consultant has been asked to consult with the Contractor on the problem.

PLEASE CORRECT OR REPAIR THE FOLLOWING ITEM(S):

DATE OF REQUEST _____ SIGNATURE _____
Project Manager

XC:
[] _____ Phone No. _____
[] _____ Phone No. _____
[] _____ Phone No. _____
[] _____ Phone No. _____

RESPONSE FROM CONTRACTOR: DATE CORRECTION WAS MADE: _____

The Contractor must endeavor to correct the defect within 7 calendar days after written notice is given. If the defect cannot be corrected in that time, Contractor shall provide a written explanation to the Owner's Representative describing the repairs needed and the time required to complete the repairs.

Description of corrections made:

DATE OF REPLY _____ SIGNATURE _____

When the repair is complete, the contractor should return a copy to each of the following:

[] _____ Phone No. _____
[] _____ Phone No. _____
[] _____ Phone No. _____
[] _____ Phone No. _____

END

WAGE RATES AND PAYROLL REPORTING

Section 00830

1. PAYMENT

1.1 Classification Definitions, Building and Heavy and Highway

1.1.1 Definitions for Building Construction and Heavy and Highway classifications shall conform to the current "Dictionary of Occupational Titles" as published by the U.S. Department of Labor.

1.2 Minimum Wages

1.2.1 Workers on Project shall be paid not less than wage rates, including fringe benefits, as published by the Department of Labor (DOL) or the \$15.00 minimum wage required by City of Austin Ordinance No. 20160324-015, whichever is higher. The Total Minimum Wage required can be met using any combination of cash and non-cash qualified fringe benefits provided the cash component meets or exceeds the \$15.00 minimum wage required.

1.2.2 Such wage rates shall be used throughout the Contract. If a classification is to be used, which is not listed in the attached wage rates, CONTRACTOR shall submit to OWNER rates and classification proposed for use, for approval, prior to performance of the Work.

1.2.3 All laborers and mechanics working upon the Work for this Project shall be paid unconditionally and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by Secretary of Labor under the Copeland Act, Title 29 CFR, Part 3) full wages accrued and when due, computed at rates not less than wage rates bound herein pertaining to type of Work being performed. When Work is of such a nature that both Building and Heavy and Highway wage scales are incorporated into contract, CONTRACTOR shall pay wage rates to mechanics or laborers performing Work in more than one classification at the rate indicated for each classification for time actually worked as determined by area practice applicable to type (Site Construction Crafts or Building Construction Crafts) of Work being performed without regards to skill. Salaried specialists (project superintendent and administrative personnel only) in the permanent employment of CONTRACTOR do not fall under any Wage Classification. A supervisor/foreman who is not exempt under 29 CFR Part 541 and who spends more than a substantial amount of time (20 percent) in a given workweek as a laborer or mechanic must be paid the applicable Wage Rate for the classification of work performed for all hours engaged in such work as a laborer or mechanic.

1.2.4 Wage rates shall be posted by CONTRACTOR at site(s) of Work in prominent, easily accessible places where they can be seen by all workers. The following shall also be posted by the CONTRACTOR: City of Austin wage contact posters (English and Spanish), City of Austin Equal Employment Opportunity posters (English and Spanish), Workers' Compensation Notice (English and Spanish), Texas Payday Law (English and Spanish), City Rest Break Ordinance (English and Spanish), City of Austin Non-Discrimination Statement (related to Title VI of the Civil Rights Act), and Federal Notices, as appropriate.

1.3 Overtime Requirements

1.3.1 No CONTRACTOR, Subcontractor, or Sub-subcontractor contracting for any part of contract Work which may require or involve the employment of laborers or mechanics shall require or permit any laborer or mechanic in any workweek in which he is employed on such Work, to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times their basic rate of pay for all hours in excess of forty hours in such workweek.

1.3.2 Overtime wages must be calculated using the Adjusted Wage Rate specified in the Wage Rate Determination or the actual basic rate of pay, whichever is higher.

2. APPRENTICES

2.1 Locally and Federally Funded Projects

2.1.1 The terms journeyman and apprentice apply to both union and independent workers, and are not intended to imply that these positions are union workers only.

2.1.2 Apprentices and Trainees will be permitted to work as such only when they are registered, individually, under a bonafide Apprenticeship or Trainee program registered with the Bureau of Apprenticeship and Training, United States Department of Labor. The allowable ratio of Apprentices or Trainees to journeymen in any craft classification shall not be greater than the ratio permitted to CONTRACTOR as stated in the registered apprenticeship program standards. Any employee listed on a payroll at an Apprentice or Trainee wage rate, who is not registered as above, shall be paid the wage rate provided in Contract for Work employee actually performed. CONTRACTOR, Subcontractor, or Sub-subcontractor shall furnish to OWNER written evidence of registration of his program for Apprentices and Trainees as well as of the appropriate ratios and wage rates, for the area of construction prior to using any Apprentices or Trainees on this Contract.

3. WITHHOLDING PAYMENTS

3.1 OWNER may withhold or cause to be withheld from CONTRACTOR as much of the accrued payments as necessary to pay laborers and mechanics employed by CONTRACTOR, Subcontractors, or Sub-subcontractors the amount of wages required to comply with the Contract. In the event of nonpayment of wages to laborers or mechanics working on the site of the Work of this Contract, OWNER may, after Written Notice to CONTRACTOR, take such action as may be necessary to cause suspension of any further payments or advance of funds to CONTRACTOR until such violations have ceased and until restitution has been made. Payments may also be withheld if CONTRACTOR fails to maintain weekly payroll reports or fails to provide copies in a timely manner upon request of Owner.

4. PAYROLLS

4.1 CONTRACTOR shall keep records showing:

4.1.1 The name, address and occupation of each worker employed by the CONTRACTOR or subcontractor(s) in the construction of the public work.

4.1.2 The actual per diem wages paid to each worker

4.1.3 Employee Certification. CONTRACTOR, all levels of Subcontractors shall identify in writing, the classification agreed to by all laborers and mechanics employed by

them in the execution of the Contract, and pay not less than rates specified in the attached Wage Rate Determination(s). Contractor shall prepare a completed form for the signature of Employee and a witness shall sign the form in the presence of Employee. If work performed by worker is different than the trade classification agreed upon, the worker shall be paid for that work no less than the minimum prevailing wage for that specified trade.

4.1.4 Payroll Deduction Authorization Form. CONTRACTOR, Subcontractor, and Sub subcontractor shall prepare for employee signature a payroll deduction authorization form to identify all payroll deductions excluding those required by statute, such as federal income taxes, Medicare and social security.

4.2 The record shall be open at all reasonable hours to inspection by the officers and agents of the Owner as requested. CONTRACTOR will be responsible to provide copies of records as requested by the Owner within two (2) working days. Payrolls relating to this Work shall be maintained during term of Contract and preserved for a period of three (3) years thereafter by CONTRACTOR for all laborers and mechanics working on the Work.

4.3 A Statement of Compliance, a letter signed and dated by party responsible for supervising the payment of persons employed by CONTRACTOR or subcontractor shall accompany payrolls required by Owner. The Statement of Compliance letter shall identify but is not limited to:

4.3.1 Name of signatory party and title

4.3.2 Name of project, payroll period and

4.3.3 Name of CONTRACTOR or Subcontractor

4.4 The signed letter attests that the payroll complies with 29CFR issued by the Secretary of Labor.

4.5 Federal Funding. In the event that federal funding is used:

4.5.1 Contractor and all levels of Subcontractors shall submit weekly certified payroll reports and signed wage compliance statements to the Owner's designated office no later than seven (7) calendar days after the scheduled payday.

4.5.2 Contractors and all levels of Subcontractors shall pay all "mechanics and laborers" not less often than once per week, for work performed the previous week.

4.5.3 Submit to the Owner's designated office Standard Form 1413, Statement and Acknowledgement, from each subcontractor prior to the subcontractor performing work on the project.

5. NONCOMPLIANCE

5.1 According to Chapter 2258 Texas Government Code Title 10A, a CONTRACTOR or subcontractor(s) who violates this section shall pay to the political subdivision on whose behalf the contract is made, \$60 for each worker employed for each calendar day or part of the day that the worker is paid less than the wage rates stipulated in the contract. A public body shall use any money collected under this section to offset the costs incurred in the administration of this chapter.

5.2 Confirmed Disciplinary action taken by CONTRACTOR against employees who provide information during an interview or investigation by the Owner on wages received, may result in suspension or debarment from consideration of award of City contracts.

6. AREA PRACTICE

6.1 Heavy and Highway Construction Rates shall be used on this Project, unless the Project consists primarily of Building Construction and Building Construction Rates are to be used.

6.1.1 Building Construction consists generally of all aspects of construction of buildings, which are sheltered enclosures with walk-in access for the purpose of housing persons, machinery, equipment or supplies, including without limitation the installation of utilities and equipment, both above and below grade level, as well as incidental demolition, grading, utilities, paving and other site work. Buildings need not be "habitable" to be classified as Building Construction and the installation of heavy machinery and/or equipment will not generally change a Building Construction project's classification.

6.1.2 The determination of Building Construction Wage Rates includes all construction trades and work necessary to complete a building, regardless of the number of contracts involved, so long as all such contracts are closely related in purpose, time and place.

6.2 For projects that involve both Building Construction and Heavy and Highway trades, the following classifications shall be used:

6.2.1 A multiple classification shall be used if Building Construction items are more than 20% of the Heavy and Highway project cost.

6.2.2 A multiple classification shall be used if Heavy and Highway Construction items are more than 20% of the Building Construction Project cost.

6.3 Split classifications/multiple wage rate schedules: When construction work requires that an employee perform work under multiple classifications or multiple wage scales, the employer must pay that worker (at least) the highest prevailing wage or the employer payroll records must accurately set forth the times spent performing the work of each classification and under each scale. For those projects that involve both Building Construction and Heavy and Highway trades, the Heavy and Highway wage rates may only be applied to workers when engaged in site work at least five (5) feet beyond the building.

7. TEXAS OPEN RECORDS ACT

7.1 Unless covered by an exception to mandatory disclosure under the Texas Public Information Act, Chapter 552, Texas Government Code, any and all documents submitted to the City of Austin become Public Records and are, therefore, subject to public disclosure.

Wage Rates for This Project Are Attached

END

WAGE RATES AND PAYROLL REPORTING

Section 00830BC

WAGE RATE DETERMINATION**Building Construction Type**

County Name: TRAVIS

Wages based on DOL Prevailing Wage Rate General Decision: TX180323 2/08/2019 TX323 and City of Austin Ordinance #20160324-015

DOL Rate column is for information only. The Total Minimum Wage Rate is derived from the Adjusted Wage Rate Required pursuant to City Ordinance plus the DOL Fringes and can be met using any combination of cash and non-cash qualified fringe benefits, provided the cash component is at least \$15.00/hour.

Classification	DOL Rate For info Only	Adjusted Wage Rate Required Pursuant to City Ordinance	DOL Fringes	Total Minimum Wage Rate Required
Asbestos Worker/Heat & Frost Insulator (Duct, Pipe, and Mechanical System Insulation)	\$ 22.72	\$ 22.72	\$ 10.02	\$ 32.74
Boilermaker	\$ 28.00	\$ 28.00	\$ 22.35	\$ 50.35
Bricklayer	\$ 20.07	\$ 20.07	\$ -	\$ 20.07
Carpenter	\$ 21.96	\$ 21.96	\$ 7.90	\$ 29.86
Carpenter (Acoustical Ceiling Installation only)	\$ 14.00	\$ 15.00	\$ -	\$ 15.00
Carpenter (Form Work Only)	\$ 15.62	\$ 15.62	\$ 0.05	\$ 15.67
Cement Mason/Concrete Finisher	\$ 15.71	\$ 15.71	\$ -	\$ 15.71
Drywall Finisher/Taper	\$ 17.06	\$ 17.06	\$ 4.43	\$ 21.49
Drywall Hanger and Metal Stud Installer	\$ 17.47	\$ 17.47	\$ 3.45	\$ 20.92
Electrical Installer (Sound and Communication Systems, Excluding Wiring)	\$ 18.00	\$ 18.00	\$ 2.30	\$ 20.30
** Electrician (Excludes Installation of Sound and Communication Systems)	\$ 27.76	\$ 27.76	\$ 8.34	\$ 36.10
***Elevator Mechanic <5 years' experience	\$ 40.96	\$ 40.96	\$ 36.17	\$ 77.13
***Elevator Mechanic >5 years' experience	\$ 40.96	\$ 40.96	\$ 36.99	\$ 77.95
Floor Layer (Carpet)	\$ 21.88	\$ 21.88	\$ -	\$ 21.88
Glazier	\$ 12.83	\$ 15.00	\$ -	\$ 15.00
HVAC Mechanic (HVAC Unit Installation Only)	\$ 23.78	\$ 23.78	\$ 6.89	\$ 30.67
Ironworker, Ornamental	\$ 23.77	\$ 23.77	\$ 7.12	\$ 30.89
Ironworker, Reinforcing	\$ 12.27	\$ 15.00	\$ -	\$ 15.00
Ironworker, Structural	\$ 20.73	\$ 20.73	\$ 5.24	\$ 25.97
*Lead Paint or Asbestos Abatement Worker	*	\$ 15.00	\$ -	\$ 15.00
Laborer, Common or General	\$ 11.44	\$ 15.00	\$ -	\$ 15.00
Laborer, Mason Tender - Brick	\$ 12.22	\$ 15.00	\$ -	\$ 15.00
Laborer, Mason Tender - Cement/Concrete	\$ 11.85	\$ 15.00	\$ -	\$ 15.00

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Laborer, Pipelayer	\$ 12.45	\$ 15.00	\$ -	\$ 15.00
Laborer, Roof Tearoff	\$ 11.28	\$ 15.00	\$ -	\$ 15.00
Operator, Backhoe/Excavator/Trackhoe	\$ 19.43	\$ 19.43	\$ 3.49	\$ 22.92
Operator, Bobcat/Skid Steer/Skid Loader	\$ 13.00	\$ 15.00	\$ -	\$ 15.00
Operator, Bulldozer	\$ 14.00	\$ 15.00	\$ -	\$ 15.00
Operator, Crane	\$ 34.85	\$ 34.85	\$ 9.85	\$ 44.70
Operator, Drill	\$ 14.50	\$ 15.00	\$ -	\$ 15.00
Operator, Forklift	\$ 16.64	\$ 16.64	\$ 6.26	\$ 22.90
Operator, Grader/Blade	\$ 19.30	\$ 19.30	\$ -	\$ 19.30
Operator, Loader	\$ 14.00	\$ 15.00	\$ -	\$ 15.00
Operator, Mechanic	\$ 18.75	\$ 18.75	\$ 5.12	\$ 23.87
Operator, Paver (Asphalt, Aggregate, and Concrete)	\$ 16.03	\$ 16.03	\$ -	\$ 16.03
Operator, Roller	\$ 11.25	\$ 15.00	\$ -	\$ 15.00
Painter (Brush, Roller, and Spray, Excludes Drywall Finishing/Taping)	\$ 18.76	\$ 18.76	\$ 6.35	\$ 25.11
Pipefitter (Including HVAC Pipe Installation)	\$ 29.50	\$ 29.50	\$ 12.82	\$ 42.32
Plumber, Excludes HVAC Pipe Installation	\$ 23.57	\$ 23.57	\$ 6.37	\$ 29.94
Roofer	\$ 12.00	\$ 15.00	\$ -	\$ 15.00
*Roofer, Metal	\$ 14.05	\$ 15.00	\$ -	\$ 15.00
Sheet Metal Worker (Excluding HVAC, Including HVAC Duct Installation)	\$ 25.76	\$ 25.76	\$ 15.10	\$ 40.86
Sprinkler Fitter (Fire Sprinklers)	\$ 29.03	\$ 29.03	\$ 15.84	\$ 44.87
Tile Finisher	\$ 11.32	\$ 15.00	\$ -	\$ 15.00
Tile Setter	\$ 16.35	\$ 16.35	\$ -	\$ 16.35
Truck Driver, Dump Truck	\$ 12.39	\$ 15.00	\$ 1.18	\$ 16.18
Truck Driver, Flatbed Truck	\$ 19.65	\$ 19.65	\$ 8.57	\$ 28.22
Truck Driver, Semi-Trailer Truck	\$ 12.50	\$ 15.00	\$ -	\$ 15.00
Truck Driver, Water Truck	\$ 12.00	\$ 15.00	\$ 4.11	\$ 19.11
Waterproofers	\$ 16.30	\$ 16.30	\$ 0.06	\$ 16.36

<http://www.wdol.gov/wdol/scafiles/davisbacon/tx.html>

See below for Additional Wage Information.

Note: *Lead Paint & Asbestos Abatement and Roofer, Metal Classifications have been added to this Prevailing Wage Rate Determination pursuant to a City of Austin Prevailing Wage Survey (trades absent from DOL).

The Wage Compliance information detailed below was excerpted from DOL General Decision TX180323 or other sources.

1. ADDITIONAL TRADE INFORMATION

**Electricians - Including low voltage wiring for computers, fire/smoke alarms.

***Elevator Mechanics - also must be paid for 8 holidays - New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, Christmas Day, and Veterans Day.

Welders - Receive rate prescribed for craft performing operation to which welding is incidental.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added upon the advance approval of City of Austin Contract Administration. CONTRACTOR shall submit to City of Austin Contract Administration for review the classification, a bona fide definition of work to be performed and a proposed wage with sample payrolls conforming to area practice **prior** to the start of the job for that type of work.

2. WAGES

The Total Wage may be met by any combination of cash wages and credible "bona fide" fringe benefits paid for by the employer. Overtime wages must be calculated using the Adjusted Wage Rate specified in the Wage Rate Determination or the actual basic rate of pay, whichever is higher. City of Austin Ordinance No. 20160324-015 requires that construction workers are paid a Minimum Wage of at least \$15.00/hour. The cash portion of their compensation must meet or exceed this amount.

3. CREDITING FRINGE BENEFIT CONTRIBUTIONS TO MEET DBA/DBRA AND CITY OF AUSTIN REQUIREMENTS

The Davis-Bacon Act (and 29 CFR 5.23), list fringe benefits to be considered. Examples are:

- > Life Insurance
- > Health Insurance
- > Pension
- > Vacation
- > Holidays
- > Sick Leave

Note: The use of a truck is not a fringe benefit; a Thanksgiving turkey or Christmas bonus is not a fringe benefit. No credit may be taken for any benefit required by federal, state, or local law such as: workers compensation, unemployment compensation; or social security contributions.

Contributions to fringe benefit plans must be made regularly, e.g. daily, weekly, etc. They must be more frequent than quarterly. (See 29 CFR 5.5 (a)(1)(I)) A periodic bonus may not be counted as a fringe benefit.

4. ANNUALIZATION OF BENEFIT COSTS

If a firm provides an electrician with \$200 per month medical insurance, to calculate allowable fringe benefit credit contributions per hour, the formula $([\$200 \times 12 \text{ months}] \text{ divided by } 2080 \text{ hours} = \$1.15 \text{ per hour})$ should be used.

5. PROPER DESIGNATION OF TRADE

A work classification on the wage decision for each worker must be made based on the actual type of work he/she performed and each worker must be paid no less than the wage rate on the wage decision for that classification **regardless** of his or her level of skill.

6. SPLIT CLASSIFICATION

If a firm has employees that perform work in more than one classification, it can pay the wage rates specified for each classification **ONLY** if it maintains accurate time records

showing the amount of time spent in each classification. If accurate time records are not maintained, these employees must be paid the highest wage rate of all the classifications of work performed by each worker. Accurate time records tracking how many hours a worker performed the work of one trade and then switched to another trade must be accounted for on a daily basis and reflected on Employer Certified Payroll accordingly.

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

6.1 Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than "SU" or "UAVG" denotes that the union classification and rate were prevailing for that classification in the survey. Example: **PLUM0198-005 07/01/2014**. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014. Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

6.2 Survey Rate Identifiers

Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: **SULA2012-007 5/13/2014**. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier. Survey wage rates are not updated and remain in effect until a new survey is conducted.

6.3 Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: **UAVG-OH-0010 08/29/2014**. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that

identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

7. WAGE DETERMINATION APPEALS PROCESS

7.1 Has there been an initial decision in the matter? This can be:

- .1** An existing published wage determination
- .2** A survey underlying a wage determination
- .3** A Wage and Hour Division letter setting forth a position on a wage determination matter
- .4** A conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in **.2** and **.3** should be followed.

7.2 With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determination
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W. Washington, DC 20210

7.3 If the answer to the question in **.1** is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W. Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

7.3 If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W. Washington, DC 20210

7.4 All decisions by the Administrative Review Board are final.

END

Notice to Bidders: This form, Addendum, Section 00900, is included for your information only. If an actual Addendum is issued for this project, the format shown below will be used. Additionally, issued addenda will be bound at the beginning of the Project Manual following the Table of Contents at the time of contract execution.

ADDENDUM NO. _____

Date _____, _____

City of Austin

Project Name _____

C.I.P. No. _____ IFB No.: _____

This Addendum forms a part of the Contract and corrects or modifies original Bid Documents, dated _____, _____ (first advertisement date). **Acknowledge receipt of this addendum in space provided on bid form.** Failure to do so may subject bidder to disqualification.

A. Project Manual Revisions:

B. Drawing Revisions:

This addendum consists of _____ page(s)/sheet(s).

Approved by OWNER

Approved by ENGINEER/ARCHITECT (as applicable per license requirements)

END

SUMMARY OF WORKSection 01010

The Work of this Contract includes sustainability requirements as shown in the Division 1 Sections 01352 and/or 01505 and all other applicable specification sections. It is the intent of the Owner to work in partnership with the Contractor in implementing sustainable construction practices to the greatest extent possible.

PART 1 - GENERAL**1.1 Related Documents:**

Drawings and general provisions of Contract, including General Conditions, Section 00700, and Supplemental General Conditions, Section 00810, and Division 1 requirements.

1.2 DESCRIPTION OF WORK**1.21 Scope of Work**

A. This section describes the Project in general and provides an overview of the extent of the Work to be performed by the CONTRACTOR. Detailed requirements and extent of Work is stated in the applicable Specification Sections and shown on the Drawings. CONTRACTOR shall, except as otherwise specifically stated herein or in any applicable part of these Contract Documents, provide and pay for all labor, materials, equipment, tools, construction equipment, and other facilities and services necessary for proper execution, testing, and completion of the Work.

B. Any part or item of the Work which is reasonably implied or normally required to make the installation satisfactorily operable shall be performed by the CONTRACTOR and the expense thereof shall be included in the applicable unit prices or lump sum prices bid for the Work. It is the intent of these Specifications to provide the OWNER with the complete system. All miscellaneous appurtenances and other items of Work that are incidental to meeting the intent of the Specifications shall be considered as having been included in the applicable unit prices or lump sum prices bid for the Work even though these appurtenances and items may not be specifically called for in the Bid Documents.

C. The Work shall include furnishing all tools, labor, materials, equipment, and miscellaneous items necessary for the complete removal and replacement of glass tile cladding at the east elevation of the site, with concrete wall repairs performed between glass tile removal and reinstallation. Concrete wall repairs generally include building out to plumb an existing concrete wall, using either self-consolidating concrete or shotcrete. Adjacent concrete sidewalks will also be removed and replaced as part of the work.

1.22 Location of Project

A. The Project is located at 410 Sabine Street, Austin, Texas, 78704.

1.23 Contractor's Responsibilities

A. Execute all Work, including excavation, installing pipe, backfill, miscellaneous concrete and testing. The Work of this Contract is specified in the City of Austin Standard Specifications, Special Provisions and Special Specifications listed in the Table of Contents.

B. Secure all construction-related permits, other than those provided by OWNER as described in paragraph 6.6 of Section 00810, Supplemental General Conditions, and pay for the same.

C. Arrange for the necessary temporary water and electric service and pay for these services and all water and electricity consumed during the construction Work.

D. Provide adequate temporary sanitary facilities.

1.24 Easements and Rights-Of-Way

CONTRACTOR shall confine his construction operations within the limits indicated on the Drawings, and shall use due care in placing construction tools, equipment, excavated materials, and pipeline materials and supplies so as to cause the least possible damage to property and interference with traffic. If the CONTRACTOR requires additional easement for his operations, the CONTRACTOR is solely responsible for acquisition and maintenance of the easement. No additional compensation will be provided by the OWNER.

A. Easements - Easements across private property are indicated on the Drawings. CONTRACTOR shall set stakes to mark the boundaries of construction easement across private property. The stakes shall be protected and maintained until completion of construction and cleanup.

B. Rights-of-Way - Permits for Work in rights-of-way shall be obtained by the CONTRACTOR. All Work performed and all operations of CONTRACTOR, his employees, or subcontractors, within the limits of railroad and highway rights-of-way, shall be in conformity with the requirements and be under the control (through OWNER) of the railroad or highway authority owning, or having jurisdiction over and control of, the right-of-way in each case.

1.25 Operation of Existing Facilities

Existing water and wastewater facilities shall be kept in continuous operation throughout the construction period. No interruption will be permitted which adversely affects the degree of service provided. Provided permission is obtained from OWNER in advance, portions of the existing facilities may be taken out of service for short periods corresponding with periods of minimum service demands.

CONTRACTOR shall provide temporary facilities and make temporary modifications as necessary to keep the existing facilities in operation during the construction period.

1.26 Connections to Existing Facilities

Unless otherwise specified or indicated, CONTRACTOR shall make all necessary connections to existing facilities including structures, drain lines, and utilities. In each case, CONTRACTOR shall receive permission from OWNER or the owning utility prior to undertaking connections. CONTRACTOR shall protect facilities against deleterious substances and damage.

Connections to existing facilities which are in service shall be thoroughly planned in advance, and all required equipment, materials and labor shall be on hand at the time of undertaking the connection. Work shall proceed continuously (around the clock) if necessary to complete connections in the minimum time. Operation of valves or other appurtenances on existing utilities, when required, shall be by or under the direct supervision of the owning utility.

1.27 Unfavorable Construction Conditions

No portion of the Work shall be constructed under conditions which adversely affect the quality or efficiency thereof, unless special means or precautions are taken by CONTRACTOR to perform the Work in a proper and satisfactory manner.

END

Division 1 General Requirements
MEASUREMENT AND PAYMENTS - LUMP SUM CONTRACTS
Section 01025

For this Project, all measurement and payment sections, including standard technical specifications and special specifications, are modified by this Section.

All work items installed, provided, constructed, etc. with the exception of the unit price items listed in Lump Sum Bid Form, Section 00300L, and described in below, shall not be paid for separately but shall be considered subsidiary to the lump sum bid price for the Project. The cost of all work materials, labor, overhead, insurance, equipment, etc. necessary to finish the work complete in place shall be included in the lump sum bid price for the project.

PART 1 - UNIT PRICES

1.1 ADDITIONAL CONCRETE SIDEWALK REPLACEMENT:

- A. All labor and material for replacement of concrete sidewalks per Section 432S, including the following as incidental:
 - 1. Subgrade preparations.
 - 2. Formwork, reinforcement, expansion joints, and other incidentals such as sealant and vapor barrier as required in Drawings.
 - 3. Formwork, reinforcement, expansion joints, and other incidentals such as sealant and vapor barrier as required in Drawings.
 - 4. Casting and curing of concrete
 - 5. Cleanup of excess material and water
- B. Reference Drawing Sheets and Specifications for requirements.
- C. Measurement unit: square foot of sidewalk.

1.2 ADDITIONAL GLASS TILE INSTALLATION:

- A. All labor and material for replacement of glass tile per Section 09 30 23, including the following as incidental:
 - 1. Protection of adjacent areas
 - 2. Installation of setting bed
 - 3. Installation of new glass tile
 - 4. Installation of joints, including sealant
 - 5. Final cleaning of tile (excesss grout)
- B. Reference Drawing Sheets and Specifications for requirements.
- C. Measurement unit: per each glass tile.

END

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

Applicable portions of the Project Manual, including but not limited to relevant Drawings and Specifications.

1.2 SUMMARY

This Section includes administrative and procedural requirements for alternates.

1.3 DEFINITIONS

A. Alternate: A Bid Item for a scope of work described in the Section 00300 Bid Requirements and Contract Documents that, if accepted by Owner, may result in additions to or deductions from the Base Bid.

1.4 PROCEDURES

A. Coordination: The Contractor must modify or adjust any affected adjacent Work as necessary to completely integrate work of the Alternate into the Project.

B. The Contractor must include as part of each Alternate, any miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of the Alternate.

C. Notification: The awarded contract will include all accepted Alternates.

D. Schedule: A Schedule of Alternates is included at the end of this Section. Specification Sections referenced in such schedule contain requirements for materials necessary to achieve the Work described under each Alternate.

E. Bidders must respond to all Alternates listed on the 00300 Bid Form, even if acceptance or rejection of an alternate will not change the Bid amount. Bid amounts must be entered in the spaces for each Alternate in the Bid Form.

The Owner has established a priority order (Alternate No. 1 has the highest priority) for the acceptance of Bid Alternates based on the Project needs and budget. Alternates will be accepted in the order listed on the Bid Form, but such acceptance will not exceed the Project budget.

PART 2 - PRODUCTS

NOT USED

PART 3 – EXECUTION

3.1 SCHEDULE OF ALTERNATES

Division 1 – General Requirements

Alternate No. 1: repair (build-out) out-of-plumb concrete wall using formed-and-poured self-consolidating concrete per Section 03 01 30, in lieu of Base Bid repair of the wall using shotcrete per Section 03 01 35. All other plans and specification sections remain applicable.

Bidder understands that the Owner may elect to require Alternate No. 1 construction (wall repair with self-consolidating concrete) in lieu of Base Bid construction with shotcrete, at the Owner's discretion, regardless of whether Alternate No. 1 price is higher or lower than Base Bid price.

END

Division 1 General Requirements
Grades, Lines and Levels
Section 01050

1. CONTRACTOR shall perform all layout work to transfer all controls for grades, lines, levels and measurements from a minimum of two reference points provided by OWNER. All survey work will be performed under the direct supervision of a Texas Registered Professional Land Surveyor (RPLS).
2. Within 5 work days of the Notice To Proceed date, or within 10 Working Days of initiating work based on the approved Schedule in a new area of the Project, the CONTRACTOR shall survey and stake the locations of all proposed improvements behind the curb and within the ROW (examples: manholes, storm inlets, fire hydrants, etc.), or any other improvements identified by the OWNER'S REPRESENTATIVE, for the purpose of identifying the nature and location of these improvements to the adjacent property owner(s). The OWNER'S REPRESENTATIVE will identify to the CONTRACTOR the improvements to be staked.
3. OWNER will not stake for construction and will not be on site for survey layout activities, except to perform quality control checks.
4. CONTRACTOR shall be required to set elevation hubs (blue tops) for subgrade and base course on centerline, at quarter points and curb lines or edge of pavement at intervals not exceeding 50 feet.
5. The construction plans will include horizontal and vertical control points. References to approved COA benchmarks used in establishing controls on the drawings will be provided by the Owner's E/A. In addition, on building projects and/or projects not built within an existing public ROW, a boundary survey will be supplied together with a legal description of the property and all easements where Work will take place.
6. CONTRACTOR shall submit construction staking layout sheets sealed by a Professional Engineer or Registered Professional Land Surveyor registered in the State of Texas. CONTRACTOR shall use a qualification based selection process consistent with the Professional Services Procurement Act, Chapter 2254.004 of the Texas Government Code, when securing the services of a Professional Engineer or Registered Professional Land Surveyor. It is a violation of State Law to solicit bids for the services of a Professional Engineer or Registered Professional Land Surveyor.
 - 6.1 Any discrepancies found with the construction documents' dimensional layout will be corrected. CONTRACTOR shall assure that the Owner's Representative and E/A are notified so that the appropriate actions are taken to correct the Contract drawings.
 - 6.2 All work to transfer all controls for grades, lines, levels, layout and measurements shall be performed under the supervision of a Texas Registered Professional Land Surveyor, provided by the CONTRACTOR. Such work shall conform to the standards for construction staking in the most recent edition of the Texas Society of Professional Surveyors Manual of Practice for Land Surveying, Category 5, Sections 1-12 inclusive.
 - 6.3 The CONTRACTOR shall furnish, without charge, experienced personnel and such calibrated survey equipment, tools, stakes, and other materials that the Owner's Representative may require in establishing or checking control points, or in checking survey, layout, and measurement work performed by the CONTRACTOR.
 - 6.4 The CONTRACTOR shall keep the Owner's Representative informed in a reasonable time in advance of the times and places at which he wishes to do work, so that any checking deemed necessary by the OWNER may be done with minimum inconvenience to the E/A and minimum delay to the CONTRACTOR. Surveying will be coordinated between the Owner's Representative and CONTRACTOR in a manner convenient to both.

- 6.5 During layout, CONTRACTOR shall field verify the elevation and alignment of all tie-in points to existing infrastructure. This work shall be performed sufficiently in advance of construction so that any conflicts may be resolved without delay. Any work done without being properly located may be ordered removed and replaced at the CONTRACTOR's expense.
- 6.6 The CONTRACTOR shall carefully preserve all monuments, benchmarks, reference points, and stakes. In case of the destruction thereof, the CONTRACTOR shall bear the cost of replacement and shall be responsible for any mistake or loss of time that may be caused. Permanent monuments or benchmarks, which must be removed or disturbed, shall be protected until properly referenced for relocation. The CONTRACTOR shall furnish materials and assistance for the proper replacement of such monuments or benchmarks.
- 6.7 The CONTRACTOR shall satisfy himself before commencing work as to the meaning and correctness of all survey control stakes, marks, etc., and no claim will be entertained by the OWNER for or on account of any alleged inaccuracies, unless the CONTRACTOR notifies the OWNER in writing before commencing the affected Work.
7. As needed for necessary documentation of the work progress, the CONTRACTOR shall maintain and/or protect offset or survey staking for the duration of the project. Any re-staking required to meet this requirement shall be done at the CONTRACTOR'S expense.
8. This item is subsidiary to the work as a whole.

End

DEFINITIONS

General: Basic Contract definitions are included in the General Conditions, Section 00700 included herein.

Approved: The term approved, when used in conjunction with the Owner's Representative's action on the CONTRACTOR'S submittals, applications, and requests, is limited to the Owner's Representative's duties and responsibilities as stated in the Conditions of the Contract. A stamp reading "No Exceptions Taken" shall have the same intent as "Approved".

Furnish: The term furnish means supply and deliver to the Project site, ready for unloading, unpacking, assembly, installation, and similar operations.

Indicated: The term indicated refers to graphic representations, notes, or schedules on the Drawings, or other paragraphs or schedules in the Specifications, and similar requirements in the Contract Documents. Terms such as shown, noted, scheduled, and specified are used to help the reader locate the reference. There is no limitation on location.

Install: The term install describes operations at the Project site including the actual unloading, unpacking, assembly, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.

Installer: An Installer is the CONTRACTOR or another entity engaged by the CONTRACTOR, either as an employee, subcontractor, or contractor of lower tier, to perform a particular construction activity, including installation, erection, application, and similar operations. Installers are required to be experienced in operations they are engaged to perform.

Project Site: The space available to the CONTRACTOR for performing construction activities either exclusively or in conjunction with others performing other work as part of the Project. The extent of the Project site is shown on the Drawings and may or may not be identical with the description of the land on which the Project is to be built.

Provide: The term provide means to furnish and install, complete and ready for the intended use.

Regulations: The term regulations includes laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, as well as rules, conventions, and agreements within the construction industry that control performance of the Work.

Trades: Using terms such as carpentry is not intended to imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as carpenter. It also does not imply that requirements specified apply exclusively to trades persons of the corresponding generic name.

INDUSTRY STANDARDS

Applicability of Standards: Except where the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.

Publication Dates: Comply with the standards in effect as of the date of the Contract Documents.

Conflicting Requirements: Where compliance with two or more standards is specified and where the standards may establish different or conflicting requirements for minimum quantities or quality levels, refer to the Owner's Representative for a decision before proceeding.

Copies of Standards: Each entity engaged in construction on the Project is required to be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.

Abbreviations and Names: Trade association names, titles of general standards, and names and titles of government agencies are frequently abbreviated. Where such acronyms or abbreviations are used in the Specifications or other Contract Documents, they mean the recognized name of the trade association, standards-generating organization, authority having jurisdiction, or other entity applicable to the context of the text provision. Refer to the "Encyclopedia of Associations," published by Gale Research Co., available in most libraries.

AA	Aluminum Association
AABC	Associated Air Balance Council
AAMA	American Architectural Manufacturer's Association
AAN	American Association of Nurserymen.
AASHTO	American Association of State Highway and Transportation Officials.
AATCC	American Association of Textile Chemists and Colorists
ACI	American Concrete Institute
ACIL	American Council of Independent Laboratories
ACPA	American Concrete Pipe Association
ADC	Air Diffusion Council
AFBMA	Anti-Friction Bearing Manufacturers Association
AGA	American Gas Association
AGC	Associated General Contractors of America
AGMA	American Gear Manufacturers Association
AHA	American Hardboard Association
AHAM	Association of Home Appliance Manufacturers
AI	Asphalt Institute
AIA	American Institute of Architects
AIHA	American Industrial Hygiene Association
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
AITC	American Institute of Timber Construction.
ALCA	Associated Landscape Contractors of America
ALI	Associated Laboratories, Inc.
ALSC	American Lumber Standards Committee
AMCA	Air Movement and Control Association
ANSI	American National Standards Institute.
AOAC	Association of Official Analytical Chemists

AOSA	Association of Official Seed Analysts
APA	American Plywood Association
API	American Petroleum Institute.
AREA	American Railroad Engineers Association
ARI	Air Conditioning and Refrigeration Institute
ARMA	Asphalt Roofing Manufacturers Association
ASA	Acoustical Society of America
ASA	American Standards Association.
ASC	Adhesive and Sealant Council
ASCE	American Society of Civil Engineers
ASHRAE	American Society of Heating, Refrigerating & Air Conditioning Engineers
ASME	American Society of Mechanical Engineers
ASPE	American Society of Plumbing Engineers
ASSE	American Society of Sanitary Engineering
ASTM	American Society for Testing and Materials.
AWCMA	American Window Covering Manufacturers Association
AWG	American Wire Gage
AWI	Architectural Woodwork Institute
AWPA	American Wood Preservers Association
AWPB	American Wood Preservers Bureau
AWPI	American Wood Preservers Institute
AWS	American Welding Society
AWWA	American Water Works Association
BHMA	Builders Hardware Manufacturers Association
BIA	Brick Institute of America
BIFMA	Business and Institutional Furniture Manufacturers Association
CAGI	Compressed Air and Gas Institute
CAUS	Color Association of the United States
CBM	Certified Ballast Manufacturers
CCC	Carpet Cushion Council
CDA	Copper Development Association
CE	Corps of Engineers

CFR	Code of Federal Regulations
CGA	Compressed Gas Association
CISCA	Ceiling and Interior Systems Construction Association
CISPI	Cast Iron Soil Pipe Institute
CPSC	Consumer Product Safety Commission
CRI	Carpet and Rug Institute
CRSI	Concrete Reinforcing Steel Institute
CS	Commercial Standard of NBS (U.S. Dept. of Commerce)
CTI	Ceramic Tile Institute
DFPA	Douglas Fir Plywood Association
DHI	Door and Hardware Institute
DLPA	Decorative Laminate Products Association
DOC	U.S. Department of Commerce
DOT	Department of Transportation
ECSA	Exchange Carriers Standards Association
EIA	Electronic Industries Association
EIMA	Exterior Insulation Manufacturers Association
EJMA	Expansion Joint Manufacturers Association
EPA	Environmental Protection Agency
FAA	Federal Aviation Administration
FCC	Federal Communications Commission
FGMA	Flat Glass Marketing Association
FHA	Federal Housing Administration
FM	Factory Mutual Research Organization
FS	Federal Specifications
FSC	Forest Stewardship Council
FTI	Facing Tile Institute
GA	Gypsum Association
GSA	General Services Administration
HEI	Heat Exchange Institute
HI	Hydronics Institute
H.I.	Hydraulic Institute

HMA	Hardwood Manufacturers Association
HPMA	Hardwood Plywood Manufacturers Association
IBD	Institute of Business Designers
ICEA	Insulated Cable Engineers Association, Inc.
IEEE	Institute of Electrical and Electronic Engineers, Inc.
IESNA	Illuminating Engineering Society of North American
IGCC	Insulating Glass Certification Council
ILI	Indiana Limestone Institute of America
IMSA	International Municipal Signal Association
IRI	Industrial Risk Insurers
ISA	Instrument Society of America
ITE	Institute of Transportation Engineers
LEED™	Leadership in Energy and Environmental Design
LIA	Lead Industries Association, Inc.
LPI	Lightning Protection Institute
MBMA	Metal Building Manufacturer's Association
MCAA	Mechanical Contractors Association of America
MFMA	Maple Flooring Manufacturers' Association
MIA	Marble Institute of America
ML/SFA	Metal Lath/Steel Framing Association
MSS	Manufacturers Standardization Society of the Valve and Fittings Industry
MUTCD	Texas Department of Transportation Manual on Uniform Traffic Control Devices
NAAMM	National Association of Architectural Metal Manufacturers
NAIMA	North American Insulation Manufacturers Association
NAPA	National Asphalt Pavement Association
NBFU	National Board of Fire Underwriters
NBGQA	National Building Granite Quarries Association
NBS	National Bureau of Standards (U.S. Dept. of Commerce)
NCMA	National Concrete Masonry Association
NCRPM	National Council on Radiation Protection and Measurements
NCSPA	National Corrugated Steel Pipe Association

NEC	National Electrical Code (Published by NFPA)
NECA	National Electrical Contractors Association
NEII	National Elevator Industry, Inc.
NEMA	National Electrical Manufacturers Association
NETA	International Electrical Testing Association
N.F.P.A.	National Forest Products Association
NFPA	National Fire Protection Association
NHLA	National Hardwood Lumber Association
NIST	National Institute of Standards and Technology
NLGA	National Lumber Grades Authority
NOFMA	National Oak Flooring Manufacturers Association
NPA	National Particleboard Association
NPCA	National Paint and Coatings Association
NRCA	National Roofing Contractors Association
NWMA	National Woodwork Manufacturers Association
OSHA	Occupational Safety and Health Administration
PCA	Portland Cement Association
PCI	Precast/Prestressed Concrete Institute
PDI	Plumbing and Drainage Institute
PE	Professional Engineer
REA	Rural Electrification Administration
RFCI	Resilient Floor Covering Institute
RMA	Rubber Manufacturing Association
RPLS	Registered Professional Land Surveyor
SDI	Steel Deck Institute
S.D.I.	Steel Door Institute
SFPA	Southern Forest Products Association
SGCC	Safety Glazing Certification Council
SIGMA	Sealed Insulating Glass Manufacturers Association
SJI	Steel Joist Institute
SMACNA	Sheet Metal and Air Conditioning Contractors National Association
SPIB	Southern Pine Inspection Bureau

SPRI	Single Ply Roofing Institute
SSPC	Steel Structures Painting Council
SSPMA	Sump and Sewage Pump Manufacturers Association
SWI	Steel Window Institute
SWPA	Submersible Wastewater Pump Association
TCA	Tile Council of America
TEX TEST	TxDOT Laboratory Test
TIMA	Thermal Insulation Manufacturers Association
TPI	Truss Plate Institute
TxDOT	Texas Department of Transportation
UL	Underwriters Laboratory, Inc.
USDA	U. S. Department of Agriculture
USGBC	U. S. Green Building Council
USPS	U. S. Postal Service
WCLIB	West Coast Lumber Inspection Bureau
WCMA	Wallcovering Manufacturers Association
WIC	Woodwork Institute of California
WLPDIA	Western Lath, Plaster, Drywall Industries Association
WRI	Wire Reinforcement Institute
WSC	Water Systems Council
WSFI	Wood and Synthetic Flooring Institute
WWPA	Western Wood Products Association
W.W.P.A.	Woven Wire Products Association

END

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

Documents related to this section will include the construction drawings and general provisions of the Contract, including the Division 1 requirements.

1.2 SUMMARY

- A. This section describes the preconstruction conference and other Project related meetings which may be held on a routine schedule throughout the duration of the Project.
- B. The CONTRACTOR, or his authorized representative(s), shall attend all Project related meetings as indicated herein. The CONTRACTOR's representatives, as a minimum, shall include his Project Manager and Superintendent. Other CONTRACTOR's representatives may attend Project related meetings; however, there shall be a maximum of four (4) CONTRACTOR's representatives at any one meeting unless the ENGINEER/ARCHITECT approves a larger number.
- C. The CONTRACTOR shall provide all pertinent reports, copies of reports, etc., for each meeting as may be required by this or other sections of the Contract.

1.3 PARTNERING WORKSHOP

- A. To complete this work most beneficially for all parties, the Owner desires to form a Partnering Team among the Owner, Engineer/Architect, Contractor, and Subcontractor(s). This relationship will draw on the strength of all parties to identify and achieve mutual goals. The objectives are effective and efficient contract performance, intended to achieve completion within budget, on schedule, and in accordance with the drawings and specifications.
- B. The Owner will schedule a Partnering Workshop independent of or in conjunction with the Preconstruction Conference, to facilitate the project objectives. The partnering relationship will be multilateral in makeup and participation will be totally voluntary.

1.4 PRECONSTRUCTION CONFERENCE

- A. Attendees

A preconstruction conference shall be held as soon after the award and execution of the Contract as possible and before any Work at the site is started. The conference will be held at a location selected by the Owner's Project Manager. The Owner's Project Manager shall prepare and distribute the meeting agenda, preside over the conference, and may distribute meeting minutes. The conference shall be attended by:

- 1. CONTRACTOR's Project Manager.
- 2. CONTRACTOR's Superintendent.
- 3. Any Subcontractors' and/or Suppliers' representatives whom the CONTRACTOR may desire to invite or whom the ENGINEER/ARCHITECT or OWNER may request to attend.
- 4. ENGINEER/ARCHITECT's representative.
- 5. OWNER's Project Manager.
- 6. OWNER's REPRESENTATIVE
- 7. OWNER's Sponsor Department Representative.

8. Representative from the City of Austin, Transportation Department if a traffic management plan is required.
9. Representative from the City of Austin, Watershed Protection and Development Review Department, Environmental Inspection Division, if site erosion / sedimentation controls are required.
10. Representative from the City of Austin, Transportation Department if utility coordination has occurred through the Austin Utility Location and Coordination Committee.
11. Representative from the City of Austin, Contract Management Department, Contract Administration Division, to discuss wage.
12. Representative from the City of Austin, Small and Minority Business Resources Department to discuss M/WBE compliance.

B. Meeting topics

The topics to be discussed may include, but will not be limited to, the following items:

1. Introduction of persons attending the meeting.
2. General project description, including length of contract and liquidated damages.
3. Key personnel associated with the construction (may include, but is not limited to the following):
 - CONTRACTOR's Project Manager
 - CONTRACTOR's Superintendent
 - OWNER's Project Manager
 - ENGINEER/ARCHITECT's representative
 - OWNER's Sponsor Department Representative.
 - Representatives of the various utilities.
4. Lines of communication and chains of command.
5. Wage and personnel records and reporting requirements.
6. Subcontractors and suppliers.
7. Submittal review and approval procedure. Submittals may include, but are not limited to the following:
 - Letter stating the name and qualifications of the CONTRACTOR's Superintendent
 - Letter(s) from the Subcontractor(s) listing their salaried specialists
 - If applicable, a letter designating the Registered Professional Land Surveyor
 - If applicable, a letter designating the Safety Representative (for general project safety) and the "Competent Person" for excavation safety
 - Excavation Safety Systems Plan
 - Schedule of Values
 - Schedule for submittals
 - Shop drawings
 - Construction schedule (The schedule shall indicate the phases of work in which subcontractors will be participating. Subcontractors shall be indicated by name.)
 - Payroll reports
 - Substitution of subcontractors
 - Non-use of asbestos materials affidavit
 - Appropriate safety training certificates for workers that will initially be on site

- Documentation for all workers initially on site who are governed by a prevailing wage classification as described in Section 00830.
 - Construction Equipment Emissions Reduction Plan
8. Job and traffic safety.
 9. Permits.
 10. Utility coordination report.
 11. Notification of property owners and other affected by the project
 12. Job meetings.
 13. Use of the site for construction, storage, staging, etc., and interrelationship with other contracts.
 14. Equal opportunity requirements.
 15. Laboratory testing of material requirements.
 16. Inventory of materials stored on site provisions.
 17. Progress estimate and payment procedure.
 18. Posting of signs.
 19. Project safety.
 20. Prompt payment procedure.
 21. Review of contract - addenda, supplementary general conditions, special provisions, special specifications, and other unique project items.
 22. Other

1.5 JOB MEETINGS

A. General

Job meetings shall be held as deemed necessary by the ENGINEER/ARCHITECT or OWNER or as requested by the CONTRACTOR throughout the duration of the Project. The meetings shall be held at a location selected by or approved by the Owner's Representative. The OWNER's REPRESENTATIVE or CONTRACTOR, as agreed to, shall preside over the meeting and issue meeting minutes.

B. Attendees

Job meetings will be attended by the following:

1. CONTRACTOR's Project Manager, when requested to attend.
2. CONTRACTOR's Construction Superintendent.
3. Any subcontractors' and/or suppliers' representatives whom the CONTRACTOR may desire to invite or whom the ENGINEER/ARCHITECT or OWNER requests to attend.
4. OWNER's REPRESENTATIVE
5. ENGINEER/ARCHITECT's representative(s), if needed or required.
6. OWNER's PROJECT MANAGER, if needed or required
7. OWNER's Sponsor Department representative(s), if needed or required.

C. Meeting topics

The topics will include, but not necessarily be limited to, the following subjects:

1. Review of previous meetings' notes and update of pertinent information and Project status.
2. Identification and discussion of new job related construction problems. Such discussion will be toward resolving identified problems.
3. Review work accomplished to date and establish proposed construction activities for the upcoming week(s).
4. Discuss the status of or need for change orders.
5. Check of required bonds and insurance certificates (including Workers' Compensation Insurance verification for CONTRACTOR's, Subcontractor's, and Sub-Subcontractor's employees as stated in Section 00700, General Conditions, 5.2 Workers' Compensation).
6. Status of pay requests.
7. Work in progress.
8. Review and update construction schedule.
9. Review of submittals schedule and status of submittals.
10. Status of SMBR Compliance Plan.
11. Status of Safety Training certificates for all new workers on project.
12. Other.

1.6 OTHER MEETINGS

Other meetings shall be held from time to time as may be requested by the CONTRACTOR, the ENGINEER/ARCHITECT, or the OWNER. The time and place of the meetings shall be as mutually agreed upon. The attendance at the meetings shall be as requested by the party requesting the meeting.

END

PART 1 - GENERAL**1.1 RELATED DOCUMENTS:**

The Contractor prepares submittals. Drawings and general provisions of Contract, including Section 00700, "General Conditions"; Section 00810, "Supplemental General Conditions"; Division 1 requirements and City of Austin Technical Specifications and Special Provisions thereto, should be used as the related documents for this requirement.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for submittals required for performance of the Work, including the following:
 - 1. Security plan.
 - 2. Contractor's construction schedule.
 - 3. Submittal schedule.
 - 4. Shop drawings.
 - 5. Product data.
 - 6. Samples.
 - 7. Quality assurance and quality control submittals, including calculations, mix designs and substantiating test results.
- B. Administrative Submittals: Refer to other Division 1 Sections and other Contract Documents for requirements for administrative submittals. Such submittals include, but are not limited to, the following:
 - 1. Permits.
 - 2. Applications for Payment.
 - 3. Performance and Payment bonds.
 - 4. Insurance certificates.
 - 5. Monthly Subcontractors expense report.
 - 6. Non-use of asbestos affidavits
- C. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. Section 00700, "General Conditions"; Section 00810, "Supplemental General Conditions"; and/or Division 1, Section 01025, "Measurement and Payment" specifies requirements for submittal of the Schedule of Values.
 - 2. Division 1, Section 01200, "Project Meetings" specifies requirements for submittal and distribution of meeting and conference minutes.
 - 3. Section 00700, "General Conditions"; Section 00810, "Supplemental General Conditions"; and/or Division 1, Section 01700, "Contract Close-out" specifies requirements for submittal of Project Record Documents and warranties at project close-out.
 - 4. Section 00700, "General Conditions" Article 6.2.4 specifies requirements for Substitutes and "Approved Equal" Items.
- D. Technical Submittals: Technical information required to be submitted by the Standard Specifications, Special Provisions or Special Specifications.

PART 2 - PRODUCTS - not used

PART 3 - EXECUTION

3.1 SUBMITTAL PROCEDURES

Contractor shall be responsible for the following:

- A. Coordination: Coordinate preparation and processing of submittals with performance of construction activities. Transmit each submittal sufficiently in advance of performance of related construction activities to avoid delay.
 - 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
 - 2. Coordinate transmittal of different types of submittals for related elements of the Work so processing will not be delayed by the need to review submittals or resubmittals concurrently.
 - a. The E/A reserves the right to withhold action on a submittal requiring coordination with other submittals until all related submittals are received.
 - 3. Processing: To avoid the need to delay installation as a result of the time required to process submittals, allow sufficient time for submittal review, including time for resubmittals.
 - a. Allow fourteen (14) calendar days for initial review. Allow additional time if the Engineer must delay processing to permit coordination with subsequent submittals.
 - b. If an intermediate submittal is necessary, process the same as the initial submittal.
 - c. Allow fourteen (14) calendar days for processing each resubmittal.
 - d. No extension of Contract Time will be authorized because of failure to transmit submittals to the E/A sufficiently in advance of the Work to permit processing.
- B. Submittal Preparation: Place a permanent label or title block on each submittal for identification. Indicate the name of the entity that prepared each submittal on the label or title block.
 - 1. Provide a space approximately 4 inches by 5 inches (100 by 125 mm) on the label or beside the title block on Shop Drawings to record the Contractor's review and approval markings and the action taken.
 - 2. Include the following information on the label for processing and recording action taken.
 - a. Project name.
 - b. Date.
 - c. Name and address of the Contractor's Engineer.
 - d. Name and address of the Contractor.
 - e. Name and address of the subcontractor.
 - f. Name and address of the supplier.
 - g. Name of the manufacturer.
 - h. Number and title of appropriate Specification Section.
 - i. Drawing number and detail references, as appropriate.
- C. Number of Copies:
 - 1. Two (2) copies of the proposed Construction schedule and subsequent revision are required.

2. Two (2) copies of the proposed Submittal schedule and subsequent revision are required.
 3. Nine (9) copies of Shop Drawings, Product, Product Samples, Quality Assurance and Quality Control submittals are required.
- D. Submittal Transmittal: Package each submittal appropriately for transmittal and handling. Transmit each submittal from the Contractor to the E/A through the Owner's Representative using a transmittal form (An example Transmittal Form is provided at the end of this section). The E/A will not accept submittals received from sources other than the Contractor.
1. On the transmittal, record relevant information and requests for data. On the form, or separate sheet, record deviations from Contract Document requirements, including variations and limitations. Include Contractor's certification that information complies with Contract Document requirements.
 2. Number transmittals in sequence for each Series of the Specifications thus: x-xxx. The number after the dash indicates the Section of the Specifications, and the number before the dash is the sequence number of the transmittal. For example, the first item submitted related to Specification Item No. 506, "Manholes" would be labeled **1-506**, the second item submitted would be labeled **2-506**, etc. If the submittal item relates to a Special Provision or Special Specification, use **SP506** or **SS5061**, for example, to indicate the applicable Specification Section. Identify resubmittals with a letter of the alphabet following the original sequence number, using "A" for the first resubmittal, "B" for the second resubmittal, etc. For example, the first resubmittal of the second item submitted for Specification SP506 would be labeled **2A-SP506**.

3.2 CONTRACTOR'S CONSTRUCTION SCHEDULE

- A. Construction Schedule: As described in Section 2.4.2 of Section 00700 "General Conditions", prepare a fully developed Contractor's construction schedule ("Baseline Schedule") using Microsoft Project® software unless otherwise approved by Owner's Representative. Submit Baseline Schedule prior to or at the preconstruction conference, and submit updated schedules as specified by the E/A, usually at each regularly scheduled Project Meeting and with each pay application.
1. Detail each significant construction activity and use a weekly timeframe for the schedule. Use the same breakdown of units of the Work as indicated in the "Schedule of Values."
 2. With each update, revise task completion percentage and mark completed tasks.
 3. Prepare the schedule on a sheet, or series of sheets, of stable transparency, or other reproducible media, of sufficient width to show data for the entire construction period.
 4. Secure time commitments for performing critical elements of the Work from parties involved. Coordinate each element on the schedule with other construction activities; include minor elements involved in the sequence of the Work. Show each activity in proper sequence. Indicate graphically the critical path items and the sequences necessary for completion of related portions of the Work.
 5. Indicate the phases of work in which subcontractors will be participating. Subcontractors shall be indicated by name.
 6. Coordinate the Contractor's Construction Schedule with the Schedule of Values, list of subcontracts, Submittal Schedule, progress reports, payment requests, and other schedules.

7. Indicate substantial completion in advance of the date established for Final Completion to allow time for the E/A's procedures necessary for certification of Substantial and Final Completion.
- B. Work Stages: Indicate important stages of construction for each major portion of the Work, including submittal review, testing, and installation.
- C. Cost Correlation: Within the Baseline Schedule, provide cost information indicating planned and actual costs. On the appropriate task line(s), show dollar volume of Work performed as of the dates used for preparation of applications for payment. Refer to Section 00700, "General Conditions", Article 14 Payment to Contractor and Completion for cost reporting and payment procedures.
- D. Distribution: Following response to the Baseline Schedule submittal, distribute electronic copies to the E/A, subcontractors, suppliers, and other parties required to comply with scheduled dates. Keep a copy at the Project Site at all times.
 1. When revisions are made, distribute to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in construction activities.
- E. Schedule Updating: Revise the schedule after each meeting, event, or activity where revisions have been recognized or made and as requested by the E/A. Issue the updated schedule concurrently with the report of each meeting, or as requested by the E/A.

3.3 SUBMITTAL SCHEDULE

- A. Concurrently with the development of the Contractor's Construction Schedule, prepare a complete schedule of submittals. Submit the initial Submittal Schedule along with the Construction Schedule, at, or prior to, the Pre-construction Conference.
 1. Coordinate Submittal Schedule with the list of subcontractors, Schedule of Values, and the list of products as well as the Contractor's Construction Schedule.
 2. Prepare the schedule in chronological order. Provide the following information:
 - a. Scheduled date for the first submittal.
 - b. Related Section number or Specification number.
 - c. Submittal category (Shop Drawings, Product Data, Calculations, Test Results, or Samples).
 - d. Name of the subcontractor.
 - e. Description of the part of the Work covered.
 - f. Scheduled date for resubmittal.
 - g. Scheduled date for completion of the E/A's review.
- B. Contractor's schedule of submittals will be reviewed to verify that the list of submittals provided is all inclusive and the schedule is reasonable and realistic for delivery of the project. Owner will provide a response to the Contractor based on the assessment of the schedule of submittals.
- C. Distribution: Upon Owner's agreement with the schedule of submittals, print and distribute copies to the Owner's Representative, E/A, Owner, subcontractors, suppliers, and other parties required to comply with submittal dates indicated. Keep copies at the Project Site at all times.
 1. When revisions are made, distribute to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in construction activities.
- D. Schedule Updating: Revise the schedule after each meeting or activity where revisions have been recognized or made. Issue the updated schedule concurrently with the report of each meeting, or as requested by the E/A.

3.4 CONSTRUCTION SEQUENCE PLANS

The Contractor is required to submit construction sequence plans to the City at, or prior to, the pre-construction conference for approval. The Project shall be divided into phases according to the sequence of construction given in the Drawings and traffic control plans. The Contractor shall arrange his/her work schedule to complete all Work on each phase, including street repair, any valve casting or manhole adjustments, and street overlay before moving on to the next work area.

3.5 SHOP DRAWINGS

- A. Submit newly prepared information drawn accurately to scale. Highlight, circle, or otherwise indicate deviations from the Contract Documents. Do not reproduce Contract Documents or copy standard information as the basis of Shop Drawings. Standard information prepared without specific reference to the Project is not a Shop Drawing.
- B. Shop Drawings include fabrication and installation Drawings, setting diagrams, schedules, patterns, templates and similar Drawings. Include the following information:
 - 1. Dimensions;
 - 2. Identification of products and materials included by sheet and detail number;
 - 3. Compliance with specified standards;
 - 4. Notation of coordination requirements; and
 - 5. Notation of dimensions established by field measurement.
 - 6. Sheet Size: Except for templates, patterns and similar full-size Drawings, submit Shop Drawings on sheets at least 8-1/2 inches by 11 inches but no larger than 24 inches by 36 inches.
 - 7. Do not use Shop Drawings without an appropriate stamp indicating action taken.

3.6 PRODUCT DATA

- A. Collect Product Data into a single submittal for each element of construction or system. Product Data includes printed information, such as manufacturer's installation instructions, catalog cuts, standard color charts, roughing-in diagrams and templates, standard wiring diagrams, applicable certifications and performance curves.
 - 1. Mark each copy to show applicable choices and options. Where printed Product Data includes information on several products that are not required, mark copies to indicate the applicable information. Include the following information:
 - a. Manufacturer's printed recommendations;
 - b. Compliance with trade association standards;
 - c. Compliance with recognized testing agency standards;
 - d. Application of testing agency labels and seals;
 - e. Notation of dimensions verified by field measurement; and
 - f. Notation of coordination requirements.
 - 2. Do not submit Product Data until compliance with requirements of the Contract Documents has been confirmed.
 - 3. Distribution: Furnish copies of final submittal to installers, subcontractors, suppliers, manufacturers, fabricators, and others required for performance of construction activities. Show distribution on transmittal forms.
 - a. Do not proceed with installation until a copy of the final submission of Product Data is in the Installer's possession.
 - b. Do not permit use of unmarked copies of Product Data in connection with construction.
 - 4. Potable Water, Reclaimed Water, and Wastewater Items or Projects: The Contractor shall submit descriptive information and evidence that the materials and equipment the Contractor proposes for incorporation into the Work is of the kind

and quality that satisfies the specified functions and quality. **Austin Water Utility Standard Products Lists (SPL)** are a part of the Specifications. Contractors shall use products specified in the Contract Documents, listed on the SPLs, or approved by AWU through the process in Section 2.4.0 of the Utilities Criteria Manual. Products contained in the SPL cannot be substituted for items shown on the Drawings, or called for in the specifications, unless approved by the E/A in conjunction with the Austin Water Utility Standards Committee. **Unless otherwise specified**, products current at the time of solicitation shall be installed except where an updated List has been issued to remove a product because of quality or performance issues.

3.7 SAMPLES

- A. Submit full-size, fully fabricated Samples cured and finished when specified and physically identical with the material or product proposed. Samples include partial sections of manufactured or fabricated components, cuts or containers of materials, color range sets, and swatches showing color, texture, and pattern.
 1. Mount or display Samples in the manner to facilitate review of qualities indicated. Include the following:
 - a. Specification Section number and reference;
 - b. Generic description of the Sample;
 - c. Sample source;
 - d. Product name or name of the manufacturer;
 - e. Compliance with recognized standards; and
 - f. Availability and delivery time.
 2. Submit Samples for review of size, kind, color, pattern, and texture. Submit Samples for a final check of these characteristics with other elements and a comparison of these characteristics between the final submittal and the actual component as delivered and installed.
 - a. Where variation in color, pattern, texture, or other characteristic is inherent in the material or product represented, submit at least 3 multiple units that show approximate limits of the variations.
 - b. Refer to other Specification Sections for requirements of Samples that illustrate workmanship, fabrication techniques, details of assembly, connections, operation, and similar construction characteristics.
 - c. Refer to other Sections for Samples to be returned to the Contractor for incorporation in the Work. Such Samples must be undamaged at time of use. On the transmittal, indicate special requests regarding disposition of Sample submittals.
 - d. Samples not incorporated into the Work, or otherwise designated as the Owner's property, are the property of the Contractor and shall be removed from the site prior to Substantial Completion.
 3. Maintain sets of Samples, as returned, at the Project Site, for quality comparisons throughout the course of construction.
 - a. Unless noncompliance with Contract Document provisions is observed, the submittal may serve as the final submittal.
 - b. Sample sets may be used by Owner for final acceptance of the construction associated with each set.
- B. Distribution of Samples: Prepare and distribute additional sets to subcontractors, manufacturers, fabricators, suppliers, installers, and others as required for performance of the Work. Show distribution on transmittal forms.

3.8 QUALITY ASSURANCE AND QUALITY CONTROL SUBMITTALS

- A. Submit quality assurance and quality control submittals, including design data, certifications, manufacturer's instructions, manufacturer's field reports, materials test results, field testing and inspection reports, and other quality-control submittals as required under other Sections of the Specifications.
- B. Certifications: Where other Sections of the Specifications require certification that a product, material, or installation complies with specified requirements, submit a certification from the manufacturer or responsible Engineer certifying compliance with specified requirements.
 - 1. Signature: Certification shall be signed by an officer of the corporation or other individual authorized to sign documents on behalf of the company.
- C. Calculations: When required in the technical specification, calculations shall be prepared and stamped by a Professional Engineer registered in the State of Texas.
- D. Concrete, Controlled Low Strength Material, Asphalt Stabilized Base and Hot Mix Asphaltic Concrete Mix Designs and Substantiating Test Data: Requirements for submittal of mix designs and substantiating test data are specified in the applicable Technical Specification Section. Each separate batch plant supplying ASB, HMAC and/or concrete shall submit mix designs to the Owner's Representative for review.

3.9 ENGINEER/ARCHITECT'S ACTION

- A. Except for submittals, for the record, or for information where action and return is not required, the E/A will review each submittal, mark to indicate action taken, and return within the time frame specified in Paragraph 3.1.A.3.
 - 1. Compliance with specified characteristics is the Contractor's responsibility.
- B. Action Stamp: The E/A will stamp each submittal with a uniform, action stamp. The E/A will mark the stamp appropriately to indicate the action taken, as follows:
 - 1. "Reviewed": the Work covered by the submittal may proceed provided it complies with requirements of the Contract Documents. Final payment depends on that compliance.
 - 2. "Reviewed with Comments": the Work covered by the submittal may proceed provided it complies with notations or corrections on the submittal and requirements of the Contract Documents. Final payment depends on that compliance.
 - 3. "Revise and Resubmit" or "Rejected": do not proceed with Work covered by the submittal, including purchasing, fabrication, delivery, or other activity. Revise or prepare a new submittal according to the notations and resubmit without delay. Repeat if necessary to obtain different action mark.
 - a. Do not use, or allow others to use, submittals marked "Revise and Resubmit" or "Rejected" at the Project Site or elsewhere where Work is in progress.
 - 4. Other Action: Where a submittal is for information, or for record purposes, or for special processing, or for other activity, the E/A will return the submittal marked "Record Copy", "Action Not Required" or "No Action Taken."
- C. Unsolicited Submittals: The E/A will return unsolicited submittals to the sender without action.

3.10 PREPARATION AND SUBMITTAL OF CONSTRUCTION RECORD DRAWINGS

The Owner's Representative and the Contractor's Superintendent will each maintain a set of bluelines noting any changes in ink during construction of the Project. The Owner's Representative and the Contractor's Superintendent will compare bluelines at least weekly (at a time mutually acceptable to both) to exchange information and compare notes to ensure all items installed and changes are documented. The following is a recommended minimum of items to be noted:

GENERAL

1. Notes should be sufficiently clear to allow a draftsman to easily make the necessary changes without the need for field checks and interpretation.
2. One complete set of Construction Record bluelines will be submitted prior to the final pay request and forwarded to the Owner.

STREET RECONSTRUCTION AND OVERLAY PROJECTS

1. Location, type, and quantity of all work added or deleted from the Project including repair areas, milled areas, sidewalk, ramps, curb and gutter, etc.
2. Deviations in street, sidewalk, curb and gutter location and grades from Drawings.

WATER/WASTEWATER PROJECTS

1. Type, name and model numbers of all valves (with # of turns to open/close), air release valves, drain and fire hydrants noted at locations installed.
2. Installed locations of all assignments, appurtenances and elevations which differ from those indicated on the Drawings.
3. Pipe manufacturer type and classification noted in sufficient detail to determine location and extent of each type or classification installed.
4. Modification to any standard or special details noted.
5. Location and description of pipe closures.
6. Thrust blocking locations and restrained pipe lengths, approximate dimensions and quantities noted.
7. Location, type and quantity of all addition and deletions.
8. Changes in grade.

The above list is not intended to be complete. Any information noted which could be used for future maintenance, location and construction projects is encouraged to be noted on the bluelines.

3.11 CONSTRUCTION DIARIES

The Contractor shall prepare a daily construction diary recording as a minimum the following information concerning events at the site and submit duplicate copies to the Owner's Representative at weekly intervals. The copies are to be signed by the project Superintendent as defined in Section 00700, Article 6.1.2.

1. Work performed;
2. Approximate count of Contractor's personnel, by classification, on the site;
3. List by classification, of all Subcontractors, personnel and any professionals on the site that day;
4. List of all equipment on the site by make and model;
5. High and low temperatures together with general weather conditions;
6. Start time and finish time of day's work;
7. Accidents and / or unusual events;
8. Meetings and significant decisions made;
9. Stoppages, delays, shortages and / or losses;
10. Meter readings and / or similar recordings;
11. Emergencies procedures that may have been needed;
12. Orders and requests of governing authorities;
13. Change Orders received and implemented;
14. Services connected and / or disconnected;
15. Installed equipment and / or system tests and / or startups and results;
16. Partial completions and / or occupancies; and

17. Date of substantial completion certified.

Shop Drawing Transmittal

Month XX, 2008

Transmittal No. _____
Previous Transmittal No. _____
Previous Submittal Date _____

City of Austin
Construction Inspection Division
Public Works Department
P.O. Box 1088
Austin, Texas 78767

Project Name: Austin Lakeside Drive

Attention: Owner's Representative

Enclosed are nine (9) copies of the following items for your review:

<u>Item No.</u>	<u>Description</u>	<u>Submittal Type</u>	<u>Specification Section</u>	<u>Subcontractor/Supplier</u>
1.	6" DI Pipe	Produce Data	510	ABC Company
2.	8" Resilient Seat Gate Valve	Product Data	511	DEF Company

NOTE: Item 1 above contains a deviation from the Specifications as indicated on the item

Submitted by: _____
XYZ Company
101 Ranch Road 2974
Austin, Texas 78759

END

Division 1 General Requirements
CONSTRUCTION EQUIPMENT EMISSIONS REDUCTION PLAN
Section 01353

1. GENERAL

1.1. RELATED DOCUMENTS

- A.** This Section applies to Drawings and all provisions of Contract.

1.2. SUMMARY – CONSTRUCTION EQUIPMENT EMISSIONS PLAN

- A.** The OWNER, as part of the Council Resolution No. 20100211-019, has decided to take steps to reduce emissions associated with construction process including Nitrogen Oxides (NO_x), particulate matter and greenhouse gas. Construction activity is a source of large quantities of particulate matter and ozone forming Nitrogen Oxides that adversely affect the health of our community and the natural environment.
- B.** The CONTRACTOR shall employ practices and take actions that reduce emissions from NO_x, particulate matter (black soot) and greenhouse gases resulting from activities associated with new construction and demolition Projects.
- C.** The CONTRACTOR shall maximize the use of equipment and vehicles with advanced emission controls in support of the City's goals, utilizing equipment that meets defined EPA emissions standards.

1.3. DEFINITIONS

- A.** "Construction Equipment" means equipment powered by an internal combustion engine and used for performing or otherwise advancing the Work on the Project, other than motor vehicles intended for use on public highways and registered pursuant to Section 502.002 of the Texas Transportation Code.
- B.** The list of applicable Construction Equipment includes, but is not limited to excavators, backhoes, loaders, bulldozers, graders, rock saws, generators, and other similar equipment.
- C.** "EPA" means the United States Environmental Protection Agency.
- D.** "Low-Use Equipment" means any piece of construction equipment which is used for less than ten (10) hours per week on site for a single construction contract.
- E.** "Greenhouse Gases" are emissions that absorb and emit radiation within the atmosphere. Greenhouse Gases can be one or a combination of, these gases: carbon dioxide, methane, nitrous oxide and three groups of fluorinated gases (sulfur hexafluoride, hydro fluorocarbons, and perfluorocarbons)

1.4. REQUIREMENTS – Not Used

1.5. SUBMITTALS

A. CONSTRUCTION EQUIPMENT EMISSIONS REDUCTION PLAN:

- 1.** The CONTRACTOR agrees to prepare a draft Emissions Reduction Plan (referred to as PLAN) prior to start of construction. This PLAN shall include an inventory report

containing identifying data for each piece of equipment to be used on the worksite and shall include the following:

- Vehicle/Equipment: Make & Model Year
 - Vehicle/Equipment: Engine Make & Model Year
 - Vehicle/Equipment: Fuel Type
 - Vehicle/Equipment: Expected gallons or hours used for project duration
- a) The OWNER will provide Emissions Reduction Toolkit to help the CONTRACTOR in preparation of the PLAN and inventory.
2. The CONTRACTOR shall develop a list of strategies to be used in this Project in order to reduce emissions from NOx, particulate matter and greenhouse gas (CO₂ equivalent). Once prepared, the agreed upon strategies shall be incorporated into the PLAN. The PLAN will then be signed by the CONTRACTOR and made ready for implementation. Implementation progress will be reviewed once a month in regularly scheduled project progress meetings. The PLAN may be modified during construction if changes are made to the Project, but adjustments shall be approved by the OWNER prior to implementation.
3. This PLAN may be used by the Owner's Representative or Inspector to conduct site inspections and/or verify compliance with specification elements.
4. If additional equipment is brought on-site after construction begins, the Contractor shall provide this same inventory information to the Owner's Representative for the new equipment on or before the day it begins work on-site. All additional equipment shall conform to the PLAN.
5. Reports shall be provided for all equipment used on-site.

B. EQUIPMENT EMISSIONS CLOSEOUT DOCUMENTATION:

1. Submit the following prior to final payment:
- a) Record of changes made to the original PLAN and reasons.
 - b) Provide a summary and documentation of strategies used and estimated reductions in fuel & emissions.
 - c) Provide documentation of amount and % of alternative fuel used.

2. PRODUCTS

Not used

3. EXECUTION

3.1. GENERAL

- A. Implement the submitted PLAN. Provide personnel, documentation, equipment, signage, transportation, and other items as required to implement the PLAN during the entire duration of the Contract.

3.2. EQUIPMENT EMISSIONS PLAN IMPLEMENTATION

- A. Plan Coordinator (Could be same as superintendent): Designate an on-site person responsible for instructing workers on the Owner's intent to reduce emissions, overseeing implementation and documenting results of the PLAN for the Project.

- B.** Plan Review: Review the PLAN in monthly progress meeting and include comments in the meeting notes.
- C.** Instruction: Provide on-site instructions to all subcontractors of emissions reduction methods to be used by all parties for the appropriate activities of the Project.
- D.** Discuss Owner's goals and requirements at the following meetings:
 - 1. Pre-bid conference.
 - 2. Pre-construction conference.
 - 3. Progress meetings (monthly).

3.3 EQUIPMENT EMISSIONS REDUCTION TOOLKIT

- A.** Equipment Emissions Reduction Toolkit available at:
 - 1. Website: (<http://austintexas.gov/departments/capital-improvement-program>)
 - 2. City of Austin Public Works Department, Project Management Division, One Texas Center, Suite 900
 - 3. Construction Job Site Office (after contract award)
- B.** Equipment Emissions Reduction Toolkit consists of:
 - 1. A list of Construction Equipment Emissions Reduction Strategies
 - 2. EPA fuel savings calculator by idling reductions
 - 3. Posting of Anti-idling signs
 - 4. Memorandum of Agreement by Local Area Governments
 - 5. Equipment Inventory Form

3.4 A LIST OF EQUIPMENT EMISSIONS REDUCTION STRATEGIES

The following are suggested emissions reduction strategies and references. As per the specification section 01353, 1.5 Submittals, the CONTRACTOR shall develop a list of strategies to be used in this Project at the start of construction.

C-1 Anti-Idling Strategies:

- 1. Implement and enforce anti-idling practices for all equipment and vehicles on and adjacent to the site and associated with the project. City will provide a construction site sign and stickers for vehicles and equipment. (<http://www.engineoff.org/>)
- 2. Limit all idling of project associated vehicles and equipment operations to five (5) minutes unless the idling is applicable to one or more of the following exceptions:
 - a) Idling is being used for emergency response purposes;
 - b) Idling is necessary for component of mechanical operation, maintenance, or diagnostic purposes; or
 - c) Idling is for the health or safety of the equipment operator.
- 3. Provide education to all staff, vendors and subcontractors about emissions hazards and anti-idling practices and encourage use of EPA calculator for fuel savings.

4. To the extent possible, do not stop or idle haulage trucks directly under tree limbs and foliage overhanging the street along the haul route. Further avoid such damage from truck exhaust by means of exhaust diversion devices to redirect or diffuse exhaust from being directed in a concentrated manner to tree limbs and foliage.
5. Avoid vehicle loitering or queuing outside or inside the gates of the work area to minimize degradation of localized air quality.

([http://data.capcog.org/air-quality/engineoff/AntiIdlingBrochure\(2\).pdf](http://data.capcog.org/air-quality/engineoff/AntiIdlingBrochure(2).pdf))

(<http://data.capcog.org/air-quality/engineoff/template-1/HowtoOrderSign.html>)

(<http://data.capcog.org/air-quality/engineoff/smartwaycalculator.xls>)

(<http://austintexas.gov/airquality/>)

C-2 Alternative Fuels:

6. Utilize **alternative fuels** including, Texas LED Compliant B20 (or higher) biodiesel, Compressed Natural Gas (CNG), propane and electric. (Refer to EPA Energy Policy Act for full list).
7. Avoid unnecessary fuel use by providing on-site fuelling for alternate fuels.

(<http://www.tceq.texas.gov/airquality/mobilesource/txled/cleandiesel.html>)

(<http://www.eere.energy.gov/cleancities>)

(<http://lonestarcfa.org>)

C-3 Vehicle/Equipment Improvements:

8. Eliminate use of vehicles in tier 0 and 1 categories per EPA and rent or purchase tier 2 and 3 or (4) compliant vehicles.
9. It is recommended that CONTRACTOR takes advantage of the **Texas Emission Reduction Plan (TERP)** grant incentives to upgrade (replace or repower) vehicles with retrofitted emission reduction technologies.
(<http://www.tceq.texas.gov/airquality/terp/index.html>) or (www.terpgrants.com)
10. Utilize **battery powered and/or solar powered equipment** where available. This strategy can be combined with anti-idling strategies by using this technology for sign boards. (evtransportal.org/dieselengineidlerreduction.pdf)

C-4 Maintenance Program:

11. Establish a preventative **maintenance program** addressing issues including but not limited to, fuel use, air emissions, tire pressure, smoke from exhaust and noise.
12. Make all efforts to **prevent oil/fuel spillage** on to site surfaces.

C-5 Resource Management:

13. Utilize equipment companies that are located closest to the construction site.
14. Store equipment on site during construction use or arrange for closest overnight storage including **temporary use of the Right of Way** if possible.

15. To the extent possible, CONTRACTOR shall maximize use of **local and regional materials** to reduce transportation emissions.
16. CONTRACTOR shall maximize **salvage and reuse** of appropriate on-site materials.
(<http://www.usgbc.org/ShowFile.aspx?DocumentID=1095>)
17. To the greatest extent possible, stage equipment and vehicles away from, and minimize operation near, sensitive receptors including, but not limited to, operable windows, fresh air intakes, hospitals, schools, licensed day care facilities, residences and areas where people congregate.

END

PART 1 - GENERAL

1.1 Related Documents:

Drawings and general provisions of Contract, including General Conditions, Section 00700, and Supplemental General Conditions, Section 00810, and Division 1 requirements.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 Office at the Work Site (Job Shack)

NOT USED

3.2 Water for Construction

All water required for and in connection with the Work to be performed shall be furnished by and at the expense of the CONTRACTOR through meters installed on hydrants, except for water used in the "disinfection of potable water lines" process per Specification 510.3(29). All water used in the disinfection process shall not be metered, but rather shall be measured by calculation. Such water use does not require a meter, but a double-check valve assembly is required when connecting to a fire hydrant or a City main. CONTRACTOR shall submit a written plan for the disinfection process for review and approval by OWNER prior to commencing Work. The written plan shall include the CONTRACTOR's plan for final flushing and discharge of chlorinated water, and shall specify the quantities of potable water that will be required for the procedure and dosage plan proposed by the CONTRACTOR. Water used in the disinfection process shall be supplied by the OWNER through hydrants or connection through a City main at no charge to the CONTRACTOR for the initial disinfection procedure up to the quantities agreed to in the written plan for the disinfection process. Should the initial disinfection procedure fail to produce acceptable bacteriological sample test results, the cost of water at standard rates used for subsequent disinfection procedures shall be the responsibility of the CONTRACTOR with quantities determined through calculations.

For all water required for and in connection with the Work to be performed other than for the disinfection process, water and meters will be available from OWNER at standard rates. All costs for obtaining a water meter shall be the responsibility of the CONTRACTOR. The CONTRACTOR shall contact the Austin Water Utility and arrange to pick up the meter. CONTRACTOR shall install a double-check valve assembly on the fire hydrant between the hydrant and the meter, to prevent backflow in the event of pressure failure. CONTRACTOR shall supply all necessary tools, hose and pipe, and shall make necessary arrangements for securing and transporting such water and shall take water in such a manner, and at such times, that will not produce a harmful drain or decrease of pressure in the OWNER's water system. It shall be the CONTRACTOR's responsibility to make arrangements with the Austin Water Utility for the metering and reporting of the amount of water used. Water shall not be used in a wasteful manner. Standard hydrant wrenches shall be used for opening and closing of fire hydrants. In no case shall pipe wrenches be used for this purpose. Temporary lines shall be removed when no longer required.

"If applicable, after the installation of the City of Austin's water meter(s) for the Project, the CONTRACTOR has the option to utilize the water available from this service at the CONTRACTOR's expense. An adjustment to the Contract amount will be made by Change Order at the end of the Project for the costs incurred by the City of Austin for the water."

3.3 Telephone Service

NOT USED

3.4 Sanitary Facilities

CONTRACTOR shall furnish temporary sanitary facilities at the site, as provided herein, for the needs of all construction workers and others performing Work or furnishing services on the Project.

Sanitary facilities shall be of reasonable capacity, properly maintained throughout the construction period, and obscured from public view to the greatest practical extent. If toilets of the chemically treated type are used, at least one toilet shall be furnished for each 20 employees. CONTRACTOR shall enforce the use of such sanitary facilities by all personnel at the site.

3.5 Protection of Public and Private Property

CONTRACTOR shall protect, shore, brace, support and maintain all underground pipes, conduits, drains, and other underground construction uncovered or otherwise affected by the CONTRACTOR's operations. All pavement, surfacing, driveways, curbs, walks, buildings, utility poles, guy wires, fences, and other surface structures affected by construction operations, together with all sod and shrubs in yards, parkways, and medians, shall be restored to their original condition, whether within or outside the easement/right-of-way. All replacements shall be made with new materials.

CONTRACTOR shall be responsible for all damage to streets, roads, curbs, sidewalks, highways, shoulders, ditches, embankments, culverts, bridges, or other public or private property, which may be caused by transporting equipment, materials, or men to or from the Work, whether by him or his Subcontractors. CONTRACTOR shall make satisfactory and acceptable arrangements with the owner of, or the agency having jurisdiction over, the damaged property concerning its repair or replacement or payment of costs incurred in connection with the damage.

All fire hydrants and water control valves shall be kept free from obstruction and available for use at all times.

3.6 Tree and Plant Protection

All trees and other vegetation which must be removed to perform the Work shall be removed and disposed of by the CONTRACTOR; however, no trees or cultured plants shall be unnecessarily removed unless their removal is indicated on the Drawings. All trees and plants not removed shall be protected against injury from construction operations.

No tree shall be removed outside of permanent easement(s), except where authorized by the E/A. Whenever practicable, CONTRACTOR shall tunnel beneath trees in yards and parking lots when on or near the line of trenching operations. Hand excavations shall be employed as necessary to prevent injury to trees. Care shall be taken with exposed roots, unearthed during construction, so that roots do not dehydrate causing tree damage.

Trees considered by the E/A to have any significant effect on construction operations are indicated on the Drawings and those which are to be preserved are so indicated.

CONTRACTOR shall take extra measures to protect trees designated to be preserved, using methods shown on the Drawings and as specified in Standard Specification Item No. 610S "Preservation of Trees and other Vegetation".

3.7 Security

CONTRACTOR shall be responsible for protection of the site, and all Work, materials, equipment, and existing facilities hereon, against vandals and other unauthorized persons.

No claim shall be made against OWNER by reason of any act of an employee or trespasser, and CONTRACTOR shall make good all damage to the OWNER's property resulting from CONTRACTOR's failure to provide security measures as specified.

Security measures shall be at least equal to those usually provided by OWNER to protect existing facilities during normal operations, and shall also include such additional security fencing, barricades, lighting, and other measures as required to protect the site. When required, the CONTRACTOR shall provide a security plan to the OWNER for review as to appropriateness of the security measures proposed.

3.8 Access Roads

CONTRACTOR shall establish and maintain temporary access roads to various parts of the site as required to complete the Project. Such roads shall be available for the use of all others performing Work or furnishing services in connection with the Project.

3.9 Parking

CONTRACTOR shall provide and maintain suitable parking areas for the use of all construction workers and others performing Work or furnishing services in connection with the Project, as required, to avoid any need for parking personal vehicles where they may interfere with public traffic, the OWNER's operations, or construction activities.

3.10 Dust Control

Dust Control during construction of this Project shall conform to Standard Specifications Item No. 220S, "Sprinkling for Dust Control". No direct payment will be made for dust control. Dust Control shall be considered subsidiary work relating to various Bid items of the Contract.

3.11 Temporary Drainage Provisions

CONTRACTOR shall be responsible for providing for the drainage of stormwater and such water as may be applied or discharged on the site in performance of the Work. CONTRACTOR shall obtain E/A approval for temporary drainage facilities which will handle, carry through, or divert around his Work all drainage flow, including storm flow and flows created by construction activity, to prevent silting of waterways or flooding damage to the property and adjacent property.

3.12 Erosion Control

CONTRACTOR shall prevent erosion of soil on the site and adjacent property resulting from his construction activities. Effective measures shall be initiated prior to the commencement of clearing, grading, excavation, or other operations which will disturb the natural protection.

CONTRACTOR shall use controls found in "Environmental Criteria Manual" or developed from successful techniques elsewhere as approved by E/A. Siltation and/or sedimentation controls shall include dams, berms, and dikes as recommended in the "Environmental Criteria Manual".

3.13 Pollution Control

CONTRACTOR shall prevent the pollution of drains and watercourses by sanitary wastes, sediment, debris and the substances resulting from construction activities. No sanitary wastes will be permitted to enter any drain or watercourse. No sediment, debris or other substance will be permitted to enter sanitary sewers and reasonable measures shall be taken by CONTRACTOR to prevent such materials from entering any drain or watercourse.

CONTRACTOR shall observe the rules and regulations of the State of Texas and agencies of the U.S. Government prohibiting the pollution of any lake, stream, river, or wetland by the dumping of any refuse, rubbish, dredge material, or debris therein.

CONTRACTOR is specifically cautioned that disposal of materials into any water of the State must conform to the requirements of the Texas Commission on Environmental Quality (TCEQ), and any applicable permit from the U.S. Army Corps of Engineers.

3.14 Noise Control

CONTRACTOR shall comply with the City of Austin's Noise Ordinance. CONTRACTOR shall take reasonable measures to avoid unnecessary noise. Such measures shall be appropriate for the normal ambient sound level in the area during working hours. All construction machinery and vehicles shall be equipped with practical sound-muffling devices, and operated in a manner to cause the least noise consistent with efficient performance of the Work.

3.15 CIP Sign

CONTRACTOR shall erect install and maintain CIP signs as specified. Signs shall be constructed in accordance with City Standard Specification Item No. 802S "Project Signs," as indicated on the Drawings.

3.16 Fences

All existing fences affected by the Work shall be maintained by the CONTRACTOR until completion of the Work. Fences which interfere with construction operations shall not be relocated or dismantled until written permission is obtained from the owner of the fence, and the period the fence may be left relocated or dismantled has been agreed upon. Where fences must be maintained across any construction easement, adequate gates shall be installed. Gates shall be kept closed and locked at all times when not in use.

Upon completion of the Work across any tract of land, CONTRACTOR shall restore all fences to preconstruction, or to a better, condition and to their preconstruction location.

3.17 Mail Boxes

CONTRACTOR shall remove, reset temporarily, and relocate permanently all mail boxes that are within construction site limits conforming to requirements of United States Postal Service. Mailboxes shall not be laid on the ground, but shall be temporarily reset the same day as removed. Payment for removing and resetting of mail boxes will not be paid for directly, but will be considered subsidiary to the various Bid items. Any damage to mail boxes or posts shall be the responsibility of the CONTRACTOR.

3.18 Emergency Facilities

Free access shall be maintained at all times to fire lanes and emergency and utility control facilities such as fire hydrants, fire alarm boxes, police call boxes, and utility valves, manholes, junction boxes, etc. In the event that it is necessary to make one of these facilities temporarily inaccessible, CONTRACTOR shall obtain approval of such action and schedule of Work from the OWNER. CONTRACTOR shall also provide at least 24 hours prior notice to the Fire Department, Police Department, and City Department governing the affected utility. The same Department(s) shall be promptly notified by the CONTRACTOR when such facilities are placed back in unobstructed service.

3.19 Notification of Owners

Unless otherwise indicated, the OWNER will notify property owners abutting the right-of-way of impending construction. The CONTRACTOR shall exercise diplomacy and tact with individual property owners.

3.20 Maintenance of Traffic

CONTRACTOR shall conduct his Work to interfere as little as possible with public travel, whether vehicular or pedestrian. Whenever it is necessary to cross, obstruct, or close

roads, driveways, and walks whether public or private, the CONTRACTOR shall provide and maintain suitable safe bridges, detours or other temporary measures to accommodate public and private travel, and shall provide reasonable notice to owners of private drives before interfering with them. Such maintenance of traffic will not be required when CONTRACTOR has obtained written permission from the owner and the tenant of the private property, or from the authority having jurisdiction over public property involved, to obstruct traffic at the designated point. A copy of the initial written permission shall be provided to the Owner's Representative.

Safety and conveyance of traffic shall be regarded as prime importance. Unless otherwise directed, all portions of streets associated with this Project shall be kept open and provided a dust free, smooth and comfortable ride to traffic. It shall be the responsibility of the CONTRACTOR to ensure that two-way traffic may safely bypass the construction site and that access is provided to abutting private property. In making open cut street crossings, the CONTRACTOR shall not block more than one-half of the street at one time without approval of the OWNER. Whenever possible, CONTRACTOR shall widen the shoulder on the opposite side to facilitate traffic control. Temporary surfacing shall be provided as necessary on shoulders.

Prior to beginning Work, CONTRACTOR shall designate, in writing, a competent person who will be responsible and available on the Project site, or in the immediate area, to ensure compliance with the traffic control plan. CONTRACTOR shall provide documentation to demonstrate the sufficient training in Traffic Control for his competent person. Owner will designate a qualified person to observe implementation and who will have authority to assure compliance with the traffic control plan.

The CONTRACTOR shall perform the necessary cleanup and finishing immediately after all or a portion of the Work is completed. When the Work includes paving operations, the entire site shall be kept clean to facilitate placement of required traffic control devices. Temporary and permanent striping lay-out shall be approved by the Transportation Department prior to placement, when included in the Work.

1. Detours

Where indicated on the traffic control plan CONTRACTOR shall erect and maintain detours around construction activities. Should CONTRACTOR desire to propose a detour, not already included in the traffic control plan, it shall be his responsibility to prepare a revised traffic control plan showing the detour, and obtain approval of the revised traffic control plan from the Transportation Department, prior to implementation of the detour. The Transportation Department has final authority as to the acceptability of any proposed revisions to the traffic control plan. The CONTRACTOR shall bear all costs for revising the traffic control plan and for maintaining the proposed detour.

2. Barricades and lights

CONTRACTOR shall place and maintain in good condition, standard barricades at each end of the Project and at other locations where traffic is rerouted or blocked from using regular traffic lanes. Barricades and warning signs shall be in accordance with the Texas Manual on Uniform Traffic Control Devices (MUTCD) and City of Austin Standard Specification Item No. 803S, "Barricades, Signs and Traffic Handling". Signs, barricades, and warning devices informing the public of construction features will be placed and maintained by the CONTRACTOR, who shall be solely responsible for their maintenance. The decision to use a particular device at a particular location as indicated in the traffic control plan or as determined by the CONTRACTOR, shall be the sole responsibility of the CONTRACTOR.

All open trenches and other excavations shall have suitable barricades, signs, and lights to provide adequate protection to the public. Obstructions, such as material piles and equipment shall be provided with similar warning signs and lights.

All barricades and obstructions shall be illuminated with warning lights from sunset to sunrise. Material storage and conduct of the Work on, or along side, public streets and highways shall cause a minimum obstruction and inconvenience of the traveling public.

3.21 Required Job Site Postings and Notices

CONTRACTOR shall post the following postings and notices in English and Spanish at one or more conspicuous locations on the job site. In the case of Projects with multiple sites, the notices and postings must be displayed at each site. In the case of Projects that do not have a job shack or other temporary facility on the site, CONTRACTOR shall post all notices on a temporary bulletin board. Other special conditions are noted below.

Required for all Projects	
<i>Poster</i>	Available at:
Baseline Schedule for Project identifying when all subcontractors will be used	N/A (as required under Section 00700, paragraph 2.4.2.1.)
Wage Rates as required under Section 00830.	Section 00830BC and/or Section 008300HH
City of Austin Wage Contact posters	Provided at Pre-Construction meeting (English and Spanish)
City of Austin Equal Employment Opportunity posters	http://austintexas.gov/departments/wage-compliance (English and Spanish)
Texas Commission on Environmental Quality "Construction Site Notice" form, if applicable, as required or the required TPDES information	http://www.tceq.state.tx.us/assets/public/permitting/waterquality/attachments/stormwater/txr152d2.pdf (Option 1 – as required under Section 00810, 6.7.4.2) N/A (Option 2 – as required under Section 00810, 2.6.7.4.3)
OSHA poster "Job Safety and Health: It's the Law"	http://www.osha.gov/Publications/osa3165.pdf (English) http://www.osha.gov/Publications/osa3167.pdf (Spanish)
City of Austin Rest Break Ordinance Signs	http://austintexas.gov/departments/wage-compliance (English and Spanish) As required to be posted in English and Spanish under Ordinance No. 20100729-047
Texas Payday Law Poster	http://www.twc.state.tx.us/ui/lablaw/ll10.pdf (English) http://www.twc.state.tx.us/ui/lablaw/ll10s.pdf (Spanish)
Texas Workers Compensation notice that the employer does or does not carry Workers Compensation insurance	Does <u>not</u> carry Workers Compensation Insurance: http://www.tdi.state.tx.us/forms/dwc/notice5.pdf (English) http://www.tdi.state.tx.us/forms/dwc/notice5s.pdf (Spanish) Does carry Workers Compensation Insurance: http://www.tdi.state.tx.us/forms/dwc/notice6.pdf (English) http://www.tdi.state.tx.us/forms/dwc/notice6s.pdf (Spanish)
TWC Employer's Notification of the Ombudsman Program to Employees	http://www.oiec.state.tx.us/documents/Employer_Notice_of_O.pdf (both versions)
DOL – The Uniformed Services Employment and Reemployment Rights Act	http://www.dol.gov/vets/programs/userra/USERRA_Private.pdf

(USERRA)	
EEOC Equal Employment Act and the Americans with Disabilities Act (ADA)	http://www.dol.gov/ofccp/regs/compliance/posters/pdf/eeopost.pdf (English) http://www.dol.gov/ofccp/regs/compliance/posters/pdf/eeosp.pdf (Spanish)
Fair Labor Standards Act (FLSA) Minimum Wage Poster	http://www.dol.gov/whd/regs/compliance/posters/flsa.htm (English) http://www.dol.gov/whd/regs/compliance/posters/flspan.htm (Spanish)
If applicable: Employee Rights for Workers with Disabilities/Special Minimum Wage Poster – Employment Standards	http://www.dol.gov/whd/regs/compliance/posters/disabc.pdf http://www.dol.gov/whd/regs/compliance/posters/disabspanc3p.pdf
"Your Rights Under the Family and Medical Leave Act (FLMA)"	http://www.dol.gov/whd/regs/compliance/posters/fmlaen.pdf (English) http://www.dol.gov/whd/regs/compliance/posters/fmlasp.pdf (Spanish)
Title VI Rights Poster	http://austintexas.gov/department/wage-compliance
Additional Postings Required for Federally Funded Projects	
"Employee Rights Under the Davis-Bacon Act"	http://www.dol.gov/whd/regs/compliance/posters/fedprojc.pdf (English) http://www.dol.gov/whd/regs/compliance/posters/davispan.pdf (Spanish)
Applies to USDOT/FHWA funded projects: "Notice of False Statements Concerning Highway Projects"	http://www.mdt.mt.gov/publications/docs/forms/dbe/eeo_board/false_statements.pdf (as required in Section 00810A Standard Federal-Aid Assurances)
Applies to USDOT/FHWA funded projects; "Contractors EEO Policy"	N/A (as required in Section 00810A Standard Federal-Aid Assurances)

END

Division 1 General Requirements
CONSTRUCTION AND DEMOLITION WASTE
MANAGEMENT
Section 01505

SECTION 01505.1 Building Projects

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

1. Division 01 Section 01200 "Project Meetings"
2. Division 01 Section 01500 "Temporary Facilities"
3. Division 00 Section "Hazardous Waste Management"
4. Division 01 Section 01700 "Contract Closeout"
5. Section 104S "Removing Portland Cement Concrete"
6. Section 111S "Excavation"
7. Section 02 41 00 "Selective Demolition".

1.2 SUMMARY

- A. The Owner has established that the Project shall minimize the creation of construction and demolition waste on the Project site and shall recycle and/or salvage non-hazardous construction, demolition, and land clearing debris to divert waste from Landfills.
 1. Contractor shall minimize factors that contribute to waste such as over packaging, improper storage, ordering error, poor planning, breakage, mishandling, and contamination.
 2. Contractor shall reuse, salvage, or recycle as many of the non-hazardous waste materials as economically feasible.
 3. As an incentive to encourage resourcefulness, all profits resulting from salvaging and recycling shall go to the Contractor.
 4. In cases where there is little to no cost difference between recycling/salvaging and land-filling of items not required to be recycled or salvaged, the Contractor is directed to recycle/salvage.
 5. Contractor shall minimize waste disposal in landfills.
- B. Hazardous materials are an exception to this Section. Comply with applicable requirements of Local, State and Federal regulations.
- C. This Section includes administrative and procedural requirements for the following:
 1. Salvaging non-hazardous demolition and construction waste
 2. Recycling non-hazardous demolition and construction waste
 3. Disposing of non-hazardous demolition and construction waste.

1.3 REFERENCES

- A.** The standards listed below form a part of this Section to the extent referenced. Standards are referred to in the text by basic reference only.
- 1.** LEED-NCReference Guide MR credit 2 (Reference only, Certification is not required)
 - 2.** Sustainable Building Sourcebook – Austin Energy Green Building:
www.austinenergy.com/Energy%20Efficiency/Programs/Green%20Building/Sourcebook/constructionWasteManagement.htm
 - 3.** Resource Exchange Network for Eliminating Waste (RENEW), TCEQ (MC-112), Biannual catalog lists materials available and wanted; serves Texas and surrounding states; lists are posted on the Internet:
<http://www.tceq.state.tx.us/assistance/P2Recycle/renew/renew.html>
 - 4.** Recycle Texas Online, A service of the Texas Commission on Environmental Quality. Contains information on about 1000 businesses and local governments handling materials from Texas. Organizations' information is self-reported and listings are free of charge. <http://www.tceq.state.tx.us/assistance/P2Recycle/rtol/rtol.htm>
 - 5.** The "Construction Materials Management Guidelines", a publication of AIA/Austin for the Governor's Energy Office provides construction waste recycling economics worksheets, recycling market information and other related information that may be useful in estimating the construction waste quantities and recycling costs for this project. Available from AIA/Austin (512) 452-4332.
 - 6.** "WasteSpec", Triangle J Council of Governments, Research Triangle Park, NC 27709, (919) 549-9390.

1.4 DEFINITIONS

- A.** Chemical Waste: Includes petroleum products, bituminous materials, salts, acids, alkalis, herbicides, pesticides, organic chemicals, and inorganic wastes.
- B.** Clean: Untreated and unpainted, not contaminated with oils, solvents, caulk, or the like.
- C.** Co-mingled: Keeping mixed recyclable materials in one container on site. The container is then taken to a material recovery facility where materials are separated for recycling.
- D.** Deconstruction: Process of carefully dismantling a building in order to salvage components for reuse and recycling. Also known as "construction in reverse".
- E.** Disposal: Removal off-site of demolition and construction waste and subsequent sale, recycling, reuse, or deposit in landfill or incinerator acceptable to authorities having jurisdiction.
- F.** Demolition: Process of removing structures as quickly as possible by using heavy machinery and generating large amounts of waste.
- G.** Disposal: Acceptance of solid wastes at legally permitted and operating facility for the purposes of land-filling.
- H.** Diversion: Avoidance of demolition and construction waste sent to landfill or incineration. Diversion does not include using materials for landfill, alternate daily cover on landfills, or materials used as fuel in waste-to-energy processes.
- I.** Hazardous Waste: Byproducts of society that can pose a substantial or potential hazard to human health or the environment when improperly managed, and possessing at least 1 of 4

of the following characteristics, or appearing on a special Environmental Protection Agency (EPA) list.

- 1. Ignitability.**
 - 2. Corrosivity.**
 - 3. Reactivity.**
 - 4. Toxicity.**
- J. Non-Hazardous Waste:** Solid wastes, such as building materials, packaging, rubbish, debris, and rubble resulting from construction, remodeling, repair, and demolition operations, possessing none of the 4 characteristics of hazardous substances, i.e., ignitability, corrosivity, reactivity, or toxicity.
- K. Landfill:** Authorized land waste disposal site that is located to minimize waste pollution from runoff and leaching. Waste is spread in thin layers, compacted and covered with a fresh layer of soil each day to minimize pest, aesthetic, disease and air and water pollution problems.
- L. Municipal Solid Waste Landfill:** A permitted facility that accepts solid, non-hazardous waste such as household, commercial, and industrial waste, including construction and demolition waste.
- M. Non-hazardous:** Exhibiting none of the characteristics of hazardous substance, i.e. ignitability, corrosiveness, toxicity or reactivity.
- N. Non- toxic:** Neither immediately poisonous nor poisonous after a long period of exposure.
- O. Recyclable:** The ability of a product or material to be recovered at the end of its life cycle and remanufactured into a new product for reuse by others.
- P. Recycle:** To remove a waste material from the Project site to another site for remanufacture into a new product for reuse by others.
- Q. Recycling:** The process of sorting, cleansing, treating, and reconstituting solid waste and other discarded materials for the purpose of using the altered form. Recycling does not include burning, incinerating, or thermally destroying waste.
- R. Return:** To give back reusable items or unused products to vendors for credit.
- S. Reuse:** A strategy to return materials to active use in the same or a related capacity.
- T. Salvage:** To remove a waste material from the Project site to another site for resale or reuse by others.
- U. Source Separation:** The act of keeping different types of waste materials separate beginning from the first time they become a waste.
- V. Toxic:** Poisonous to living beings either immediately or after a long period of exposure.
- W. Trash:** Any product or material unable to be reused, returned, recycled, or salvaged.
- X. Waste:** Extra material or material that has reached the end of its useful life in its intended use. Waste includes salvageable, returnable, recyclable, and reusable material.

All materials removed from the Project site to be land-filled, recycled, or salvaged for reuse. Pallets, containers, packaging and packing materials in which construction products are delivered to the Project site are considered waste materials. New, leftover materials that are returned to the material suppliers are not considered waste.

- Y. Waste Management Plan: A Project-related plan for the collection, transportation, and disposal of the waste generated at the construction site. The purpose of the plan is to ultimately reduce the amount of material being land-filled.

1.5 WASTE MANAGEMENT GOALS

- A. The Owner has established that at least 50% of the "waste" materials produced as a result of the Work, shall be employed, salvaged, reused, or recycled in order to minimize the impact of construction and demolition waste on landfills, and to minimize the expenditure of energy and cost in fabricating new materials. Of the waste that is generated, as many of the waste materials as economically feasible shall be reused, salvaged, or recycled. Waste disposal in landfills or incinerators shall be minimized, thereby reducing disposal costs. As a minimum, 50% of material that would otherwise go to the landfill shall be diverted.
- B. Contractor shall employ and encourage practices that ensure the generation of as little waste as possible due to error, poor planning, breakage, mishandling, contamination, or other factors.
- C. Revenues, savings, rebates, tax credits and other incentives received for recycling waste materials shall accrue to the Contractor.
- D. Contractor is responsible for knowing and complying with regulatory requirements, including but not limited to Federal, State and local laws and regulations, pertaining to legal disposal of all construction waste materials.
- E. Recycle material including diverting materials for secondary uses whenever economically feasible.
- F. Dispose of materials with no practical use or economic benefit at landfill.
- G. Acceptable methods of diversion include:
 - Donation to nonprofit organizations
 - Removal from jobsite by staff or subcontractors for use (not disposal)
 - Return to supplier
 - Sale to organizations or individuals
 - Recycling
- H. The Contractor shall develop a Construction Demolition Waste Management Plan that results in end-of-Project rates for recycle and/or salvage at least 50% of non-hazardous construction and demolition debris. Develop and implement the plan that, at a minimum, identifies the materials to be diverted from disposal and whether the materials will be sorted on-site or co-mingled. Calculations can be done by weight or volume, but must be consistent throughout.

1.6 SUBMITTALS

- A. **Draft Waste Management Plan:** Within 14 calendar days after date of the Notice to Proceed, or prior to any waste removal, whichever occurs first, submit a draft Waste Management Plan outlining how demolished items and waste material will be removed from the Project Site.

An example template is included as "Appendix A" to this section.

1. The Waste Management Plan shall include the following:

- a. Identify each type of demolished and waste material produced as a result of the Work on the Project Site.

- b. Identify each type of demolished and waste material intended to be recycled or reused.
- c. Identify estimated quantities for each type of demolished and waste material that can be recycled or reused.
- d. Identify material separation requirements.
- e. Identify location of temporary on-Site storage for recycled and reused materials.
- f. Identify final destination for each recycled and reused material.
- g. Identify means of transportation for each recycled and reused material to their final destination.
- h. Identify the name/phone number of the Coordinator of the Waste Management Plan. The Coordinator is Contractor-designated on-site party responsible for workers and overseeing and documenting results of Waste Management Plan.
- i. Indicate permit or license and the location of the municipal solid waste landfills and other disposal area(s) to be used.
- j. List of materials that cannot be recycled or reused.

B. *Final Construction Waste Management Plan:* Once the Owner has determined which of the recycling options addressed in the draft Construction Waste Management Plan are acceptable, revise and resubmit, within 14 calendar days, a final Construction Waste Management Plan. Approval of Contractor's Plan will not relieve the Contractor of responsibility for compliance with applicable environmental regulations.

C. *Waste Management Reports:* Prepare and maintain through Project duration a record of waste management. An Example template of a waste management record form is attached as "Appendix B" of this Section. With each application for progress payment, Contractor shall submit a summary of solid waste generated by the construction and demolition operations. Submit an electronic version of the updated form (showing new and cumulative information), indicating solid waste generated by the construction and means of disposal or diversion. Failure to submit updated reports with each Application for Progress Payment may delay payment. Include as a minimum the following information on the form: manifests, weight tickets, receipts and invoices, specifically identifying the Project and waste material for:

- 1. Municipal solid waste landfills.
- 2. Recycling centers.
- 3. Non-Profit organizations.
- 4. Landfill or Incinerator Disposal: Updates to the form and other updates required as part of the Waste Management Report shall include:
 - a. Land-fill Materials Description. Include date removed from jobsite.
 - b. Land-fill Hauler and Location of disposal or incineration.
 - c. Quantity of Land-filled (or incinerated) Waste
 - d. Submit electronic copy of manifests, weight tickets, receipts, and invoices as evidence of quantity and cost.

- e. The amount (in tons or cubic yards) of material land-filled from the Project, the identity of the landfill, the total amount of tipping fees paid at the landfill, and the total disposal cost.
 - f. For each material recycled, reused, or salvaged from the Project, include the amount (in tons or cubic yards, pounds, feet, square yards, gallons, etc.), the date removed from the Project site, the receiving party, the transportation cost, the amount of any money paid or received for the recycled or salvaged material, and the net total cost or savings of salvaging or recycling each material.
- 5. Recycled and Salvaged Materials:** Updates to the form shall include the following information:
- a. Diverted / Recycled Materials Description, including those retrieved by installer for use on other projects, those taken by the Contractor's staff or subcontractors for use on their projects, and those donated to charitable organizations. Include date item was removed from jobsite.
 - b. Diversion / Recycling Hauler and Location, indicating name of person or company removing the material for future use and the location to which the item was removed.
 - c. Quantity of Diverted / Recycled Waste
 - d. Submit electronic copy of manifests, weight tickets, receipts, and invoices as evidence of quantity and cost.
 - e. The City of Austin Project manager may request further information regarding how the diverted material was used or is intended to be used.
- D. CWM Closeout Documentation:** Submit the following upon the completion of The Work and prior to final payment:
- a. The completed Project Waste Management Record Form with Contract closeout documents, "signed" by the Contractor's representative and including calculations on end-of-project recycling rates, salvage rates, and landfill rates demonstrating that 100% of all non-hazardous construction wastes were recycled, salvaged or disposed of properly.
 - b. Copy of all receipts, manifests, weight tickets, and other documentation of materials recycled, salvaged, land-filled or incinerated, that have not already been documented.
 - c. Electronic copy of a final summary.

2 PART 2 - PRODUCTS

Not used

3 PART 3 – EXECUTION

3.1 GENERAL

- A.** Implement the waste management plan as approved by the City of Austin Project Manager. Provide handling, containers, storage, signage, transportation, and other items as required to implement waste management plan during the entire duration of the Contract.
- B.** Satisfy the requirements outlined in Subsection 1.5, Waste Management Goals.

3.2 WASTE MANAGEMENT PLAN IMPLEMENTATION

- A.** Plan Coordinator: Designate an on-site party (or parties) responsible for instructing workers, overseeing implementation and documenting results of the Waste Management Plan for the Project.
- B.** Plan Distribution: Provide copies of the Waste Management Plan to the Contractor's superintendent, each Subcontractor, the Owner, and the Engineer.
- C.** Instruction: Provide on-site instruction of appropriate separation, handling, and recycling, salvage, reuse, and return methods to be used by all parties at the appropriate stages of the Project. Contractor is responsible for requiring participation of subcontractors.
- D.** Meetings: Conduct construction waste management meetings. Include subcontractors affected by the Waste Management Plan. At a minimum, discuss and develop a mutual understanding for achieving all of the Owner's waste management goals at the following meetings:
 - 1.** Pre-bid conference.
 - 2.** Pre-construction conference.
 - 3.** Progress meetings.
- E.** Careful Ordering.
- F.** Materials Handling Procedures: Protect materials to be recycled from contamination. Handle, store and transport in a manner that meets the requirements set by the designated facilities for acceptance. All materials shall be covered during transportation to prevent contamination and littering.
- G.** Separation Facilities: The Contractor shall lay out and label a specific area to facilitate separation of materials for potential recycling, salvage, reuse, and return. Recycling and waste bin areas shall be kept neat and clean and clearly marked in order to avoid contamination of materials.
- H.** Handling:
 - 1.** Clean materials which are contaminated prior to placing in collection containers. Deliver materials free of dirt, adhesives, solvents, petroleum contamination, and other substances deleterious to recycling process.
 - 2.** Arrange for collection by, or delivery to, the appropriate recycling or reuse facility.
- I.** Hazardous Wastes: shall be separated, stored, and disposed of according to local prevailing regulations, and in accordance with the appropriate section of this specification.

3.3 RECYCLING REQUIREMENTS

- A.** Materials: Refer to individual specification sections for detailed Waste Management requirements. In general, the following types of construction waste materials generated during the course of this project that are not salvaged shall be recycled:
 - 1.** Asphalt concrete pavement.
 - 2.** Concrete.
 - 3.** Concrete block.
 - 4.** Metals, including the following.
 - a.** Banding straps.
 - b.** Reinforcing steel.

- c. Iron.
 - d. Brass and bronze.
 - e. Lead.
 - f. Extruded aluminum.
 - g. Aluminum sheet.
 - h. Stainless steel sheet.
 - i. Steel studs.
 - j. Copper pipe.
 - k. Steel pipe.
 - l. Galvanized steel pipe.
 - m. Metal ductwork.
5. Clean dimensional lumber.
 6. Broken wood crates and pallets.
 7. Glass and glass containers.
 8. Plastics.
 9. Plaster.
 10. Gypsum board.
 11. Acoustic ceiling tile.
 12. Carpet and pad.
 13. Paint and paint containers.
 14. Metal toilet partitions.
 15. Food service equipment.
 16. HVAC heating and cooling coils.
 17. HVAC equipment.
 18. Plumbing fixtures.
 19. Electrical conduit.
 20. Electrical wiring.
 21. Light fixtures.
 22. Cardboard, paper, and packaging.
 23. Beverage containers.
- B. Methods: The following recycling methods may be used.
1. On-site separation: Each material to be recycled shall be separated at the Project site and delivered to the recycling markets or directly from the Project site.
 - a. If on-site separation method is used, designate a specific area or areas to facilitate separation of materials for potential reuse, salvage, recycling, and return.
 - b. Maintain recycling and waste bin areas neat and clean and clearly marked, both in Spanish and in English, in order to avoid commingling of materials.
 - c. Protect bins during non-working hours from off site contamination.

2. Off-site separation: Materials to be recycled are delivered unsorted from the Project site to a materials recovery facility or transfer station where recyclable materials are separated from other waste.
 - a. If this method is selected, Contractor shall verify that the entity responsible for the off-site separation has a market for all of the materials that are required to be recycled that it receives from the Project site.
 - b. The same Submittals procedures shall apply.
 - c. Protect bins during non-working hours from off site contamination.
 3. A combination of each of the above methods.
- C. Area Recyclers: A reference for waste recycling markets and resources for the Austin, Texas area is included at the end of this Section.

3.4 REUSE

- A. Contractor is encouraged to reuse as many demolished and waste materials as possible.
- B. Reuse of demolished and waste materials includes the following:
 - a. Salvaging existing materials scheduled for resale.
 - b. Off-Site storage of demolished materials for future reuse by Contractor on other projects.
 - c. Returning reusable materials, such as packaging and pallets, to vendor.
 - d. Returning unused new materials to vendor.
 - e. Assemble designated reuse items in a single location safe from damage, for review and approval by the Owner's Representative.
- C. Submit a list of reused materials as part of the Waste Management Record
- D. Contractor shall investigate the possibility of off-Site reuse of demolished and removed materials in the Austin, Texas metropolitan area.

3.5 SALVAGE

- A. Salvage materials as identified on the Architectural and Engineering Demolition Plans.
- B. Salvage Guidelines:
 1. The contractor shall salvage as many items as deemed economically possible, considering that each item salvaged saves on land filling fees and may be of use to others.
 2. Assemble potentially salvageable items in one area for review by the City of Austin Project Manager. No items may be donated or sold to the public without prior approval by the City of Austin Project Manager.
 3. The Contractor, with assistance requested from the City of Austin Waste Reduction Assistance contact and Engineer, shall consider several possible markets for salvaged items. Examples of potential markets are:
 - a. Habitat for Humanity Restore.
 - b. Project site display for public purchase/donation
 - c. Demolition Contractor's sales yard/area

4. Salvage items shall be stored in a manner that prevents damage.
5. All proceeds from the sale of salvaged items shall go to the contractor.
6. The contractor shall submit a list of items salvaged as part of the Waste Management Records.

3.6 SCHEDULE OF MATERIAL DISPOSAL & RECYCLING SERVICES

- A. The following list is provided for informational purposes only. Additional opportunities may be available. All information contained in this list is from the Austin Energy Green Building Program. Shortcut to:
<http://www.austinenergy.com/Energy%20Efficiency/Programs/Green%20Building/Sourcebook/constructionWasteManagement.htm>

Contractor shall re-verify any crucial information prior to making arrangements that involve any of the firms listed.

Appendix A. Sample Construction Waste Management Plan

Construction Waste Management Plan

Project:
Contractor:
Date:
Contact:
Phone:
Prepared by:

*Diversion Goal: Salvage and recycle at least 50% (by weight or volume)
of land-clearing and construction waste*

Complete all sections below that are required by or pertinent to this project as outlined in the Construction Documents.

I. Coordination and Training

- a. Name of Contractor's representative responsible for CWM implementation & coordination:
- b. How will Contractor's staff and subcontractors be instructed and updated regarding demolition and construction phase **salvaging** activities?
- c. How will Contractor's staff and subcontractors be instructed and updated regarding proper **recycling and separation** procedures, and how will contamination of separated waste materials will be prevented?
- d. Describe and/or show on an attached site map where the temporary waste material storage area(s) will be located.
- e. Recycling and trash containers and areas shall be clearly marked in English and Spanish in order to avoid contamination. Architect's review and approval of the storage area(s) and signage will be required as part of the approval of this Construction Waste Management Plan.

II. Waste Minimization

- a. What waste minimization techniques will be employed during the construction phase? (See "Waste Minimization" subsection in specifications Section 01505, Construction Waste Management)

- b. Which employees and / or subcontractors will be involved with each technique?

III. Construction Waste Analysis (including site / land-clearing materials, as applicable)

- a. *Diverted Materials*:** For each of the materials anticipated to be reused or recycled (and thereby diverted from the landfill) to meet the minimum 50% diversion goal, provide information to complete the table below. (Note: Whenever possible, please make efforts to use or donate usable construction waste materials rather than recycling.)

Material or Item	Storage Method (roll-off, bin, area, on pallet, etc.)	Quantity estimate (no., linear ft., square ft., etc.)	Proposed Recipient

Add rows (or paper pages) as required

- b. *Landfill*:** For construction phase trash and materials / items that will not be diverted, complete the following table:

Quantity estimate (weight or volume)	Number and size of roll offs anticipated	Proposed landfill site

Appendix B. Summary of Solid Waste Disposal and Diversion

Project name _____

Project Number _____

Contractor Name _____

License Number _____

Contractor Address _____

Solid Waste Material	Date Material Disposed/ diverted	Amount Disposed/ Diverted (Ton or cubic yd.)	Municipal Solid Waste Facility (Name, address, Phone)	Recycling/Reuse Facility Name Address Phone	Comment (If disposed state why not diverted)
Land Clearing Debris					
Asphalt					
Concrete					
Metal					
Wood					
Debris					
Glass					
Clay Brick					
Paper/Cardboard					
Plastic					
Gypsum					
Paint					
Carpet					
Other					
Other					

Signature _____

Date _____

END

PART 1 - GENERAL

1.1 Related Documents:

Drawings and general provisions of Contract, including General Conditions, Section 00700, and Supplemental General Conditions, Section 00810, and Division 1 requirements.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 General

CONTRACTOR shall maintain reasonable local vehicular and pedestrian dust free traffic, including use of driveways, to proceed safely with minimum inconvenience, except during actual construction operations. CONTRACTOR provided flaggers shall assist traffic when a street is operating under a single lane. Two-way traffic shall be maintained at all other times unless otherwise authorized by Owner.

CONTRACTOR shall provide, at the work zone location during temporary traffic control installation, a designated Competent Traffic Control Person to ensure compliance with the traffic control plans and the provisions of the Contract. Training Certificates for the designated Competent Person shall be provided with submittals at the Precon. Training certificates for competent persons shall be good for four (4) years from the date of training. After such time the competent person must show that additional training or re-certification has been completed to maintain competent person status.

CONTRACTOR shall maintain a smooth and safe ride for traffic by placing steel plates with Asphaltic concrete berms, temporary fill or bridging and temporary surfacing with cold or hot-mix Asphaltic concrete paving in accordance with applicable City Standards.

Sidewalks shall not be obstructed, except by special permission of Owner or E/A. Access to private dwelling and to commercial establishments shall be provided at all times.

CONTRACTOR shall plan and execute his operations in a manner that will cause a minimum interference with traffic. The CONTRACTOR shall place and maintain in good condition, standard barricades at each end of the Project and at other locations where traffic is rerouted or blocked from using regular traffic lanes. Barricades and warning signs shall be in accordance with Texas Manual on Uniform Traffic Control Devices (MUTCD) and the City of Austin Transportation Criteria Manual.

Signs, barricades and warning devices informing public of construction features shall be placed and maintained by the CONTRACTOR who shall be solely responsible for their maintenance.

Unless otherwise specified elsewhere in Division 1, neither explosives nor blasting shall be permitted on this Project.

3.2 Traffic Control

3.2.1 It shall be the sole responsibility of the CONTRACTOR to furnish, install, maintain and remove barricades, detour signs, warning signs, lights and all regulatory traffic control devices of the size and type specified, at locations indicated, or as directed or approved by the OWNER in accordance with the Texas Manual on Uniform Traffic Control Devices, (MUTCD), Part VI, Traffic Control for Street and Highway Construction and Maintenance Operations and the City of Austin Transportation Criteria Manual. Upon phase completion, the Contractor shall immediately revise the

temporary traffic devices to reflect the next phase or if the project is complete remove them from the public right of way.

- 3.2.2 Throughout the life of the Contract, all existing roads and Traffic Control devices included in the Work shall be maintained by the CONTRACTOR to a condition, in the opinion of the OWNER, which is equal to or better than that which existed when Work commenced. Maintenance of existing roads and devices shall take priority over all other Work items and shall be subject to a seven-day-a-week, 24-hours-per-day time frame. The CONTRACTOR shall provide a smooth and safe riding surface for all vehicles along the route of this Project. This could include, but not be limited to, small cars, motorcycles, mopeds and bicycles. If the condition of the street surface deteriorates, for any reason, CONTRACTOR shall take necessary steps to insure immediate restoration.
- 3.2.3 During construction of streets, drainage, and utility projects, if conditions of existing street surface require maintenance to upgrade from their state when the Work began, a separate pay item may be included in Bid. Otherwise, maintenance work will not be paid for directly but will be considered subsidiary to various Bid items of this Contract.
- 3.2.4 In the event that CONTRACTOR fails, in opinion of OWNER, to maintain a smooth surface for public comfort, fails to provide ingress and egress to private property, and/or does not provide and maintain proper traffic control devices, OWNER may provide these services and deduct any cost thereof, including overtime and administrative expenses, from all estimates thereafter due the CONTRACTOR. Such action by the OWNER shall not relieve the CONTRACTOR of his liability to protect the public at construction site. Owner may also assess an investigation fee, as established by separate Fee Ordinance, for violations resulting in more than one deficiency report issued to Contractor.
- 3.2.5 A permit must be obtained from Texas Department of Transportation (TxDOT), prior to Work being performed on state highway routes passing through the City.
- 3.2.6 CONTRACTOR shall notify the Owner's Representative, Police Department, Fire Department, EMS, and Right of Way Management Division at least seven Calendar Days in advance of beginning proposed Work, with intention to close or partially block any street or any part thereof, or of any construction affecting free flow of traffic. The CONTRACTOR shall plan and adequately provide barricades and warning devices. The same parties shall be notified when normal traffic flow is restored.
- 3.2.7 Should the CONTRACTOR, in his operations, reduce an existing two-way roadway to less than 20 feet in width, CONTRACTOR shall provide a route through or around the narrowed area as approved by Owner or E/A.
- 3.2.8 The CONTRACTOR's Flaggers shall be required any time it is necessary for the CONTRACTOR's equipment to move into or across an open traffic lane, or at other such times as directed by the Owner's Representative. A flagger shall be utilized to aid exit of hauling equipment from open traffic lanes to the Work area, and entry of hauling equipment from Work area to open traffic lanes. Flaggers shall be dressed and conduct operations in accordance with Texas Manual on Uniform Traffic Control Devices and the Transportation Criteria Manual. Flagging operations shall be the sole responsibility of the CONTRACTOR.
- 3.2.9 The CONTRACTOR and Subcontractors shall confine their activities to the immediate area of the construction site and provide the following:
 - a. Appropriate temporary fences, barricades, and/or Metal Beam Guard Fence if required, for site work involving excavation, utility extensions, remote construction work or other circumstances involving safety of public or protection of the work in progress.

- b. Warning lights at open trenches, excavations, etc., during hours from dusk to dawn each day. Protection of structures, utilities, sidewalks, pavements, and other facilities immediately adjacent to excavations, from damages caused by settlement, lateral movement, undermining, washout and other hazards.

3.3 Spoil Disposal

CONTRACTOR may make other arrangements for spoil disposal subject to E/A evaluation of the CONTRACTOR-supplied proof that the Owner(s) of the proposed site(s) has a valid fill permit issued by the appropriate governmental agency. Finally, the CONTRACTOR shall submit a haul route plan including a map of the proposed route(s) for the E/A and Owner's approval.

3.4 Street Markers and Traffic Control Signs

It shall be responsibility of the CONTRACTOR to remove, preserve and reset, as required, Street Marker and Traffic Control Signs that are within construction limits to the line and heights as described in Texas Manual on Uniform Traffic Control Devices before any sidewalks or street excavation is begun. Signs shall not be laid on the ground. No payment will be made for this work but shall be considered subsidiary to the various Bid items. Traffic Sign Activity Section of the Transportation Department (457-4850) shall be notified a minimum of five Working Days prior to completion of the Project so that signs may be checked for damage. Any damage to signs or posts shall be paid for by the CONTRACTOR.

3.5 Burning Permit

Open burning within City limits will not be allowed. Trench burning shall require a permit from the Fire Marshal. Burning permits outside City limits shall be obtained from the appropriate authority.

The CONTRACTOR shall secure and pay for all burning permits.

3.6 Driveways

Unless otherwise indicated, the approach grade of existing driveways shall be modified as indicated and as directed by the Owner's Representative. The OWNER will contact property owners whose driveways require grade modification beyond street right-of-way and the OWNER will obtain their concurrence for approach grade modification. Within the right-of-way, all driveways shall be replaced with concrete driveways. Outside the right-of-way, when approach grade modifications are required, flexible base shall be placed by the CONTRACTOR to resurface existing dirt or gravel driveways; asphalt and concrete drives shall be replaced in kind by the CONTRACTOR. Excavation, Flexible Base, Portland Cement Concrete and Asphaltic Concrete, used for driveways as prescribed above shall not be measured for payment but shall be considered subsidiary to various Bid items in the Contract unless payment is included as a separate Contract pay item.

3.7 Removal or Relocation of Fences and Sprinkler Systems

Removal or relocation of privately owned fences and sprinkler systems not specified in Bid, and within public right-of-way is the primary responsibility of the property owner. OWNER will cause property owners to be aware of any known conflicts and encourage them to make desired adjustments in advance of construction. In the event the property owner does not, or will not, make adjustments necessary for construction of improvements to be made under this Contract, CONTRACTOR, after receiving written approval from the OWNER, shall remove those portions that interfere with the Work, as follows:

- 3.8.1 Fences shall be disassembled, by hand, into hand manageable sizes and placed on the private property.
- 3.8.2 For sprinkler systems, the CONTRACTOR, after assuring that electrical and/or mechanical controls are disconnected, shall remove sprinkler heads, valves, controls, and any other miscellaneous items, including distribution pipe, or wire, saw cut from the system. The CONTRACTOR shall present these materials to the property owner.

Where piping is cut, the pipe shall be permanently capped or plugged, unless otherwise directed by the OWNER.

Work for removal or relocation of fences and sprinkler systems shall not be paid for directly but shall be subsidiary to the various Bid items.

End

SECTION 01700
CONTRACT CLOSEOUT

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes: Administrative and procedural requirements for contract closeout, including Substantial Completion and final completion procedures.

1.2 SUBMITTALS

- A. Punch List: List of items to be completed or corrected.
 - 1. Organization of List: Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside limits of construction. Use CSI Form 14.1A or similar form.
 - a. Organize list of spaces in sequential order.
 - b. Organize items applying to each space by major element.
 - c. Include following information at top of each page:
 - 1) Project name.
 - 2) Date.
 - 3) Name of Engineer.
 - 4) Name of Contractor.
 - 5) Page number.
 - d. Submit one 8-1/2-by-11-inch copy.
- B. Warranties:
 - 1. Organize warranty documents into orderly sequence based on table of contents of Project Manual.
 - a. Bind warranties in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch paper.
 - b. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify product or installation. Provide typed description of product or installation, including product name and names, addresses, and telephone numbers of manufacturer and Installer.
 - c. Identify each binder on front and spine with typed or printed title "WARRANTIES," Project name, and name of Contractor.
 - d. Scan warranties and assemble complete warranty submittal package into single indexed electronic PDF file with links enabling navigation to each item. Provide table of contents at beginning of document.
 - 2. Submit one set of binders and one scanned copy of warranty package.
 - 3. Provide additional copies of each warranty to include in maintenance manual.
- C. Product Maintenance Manual:
 - 1. Assemble complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated in Work. Include maintenance data required in individual Specification Sections, for each product and system and following:

- a. Manufacturer's address and product information, cross-referenced to Specification Section number and title.
 - 1) Include project-specific product details, such as color, pattern, texture, and material and chemical composition.
 - 2) Include re-ordering information for specially manufactured products.
 - 3) For manufacturers' standard printed data, include only sheets pertinent to product installed. Mark each sheet to identify each product incorporated into Work. If data include more than one item, identify each item using appropriate references from Specification Sections. Identify data applicable to Work and delete references to information not applicable.
- b. Name, address, and telephone number of Installer or supplier.
- c. Maintenance and service schedules for preventive and routine maintenance.
- d. Maintenance procedures, and maintenance materials and sources.
- e. Maintenance record forms.
- f. Copies of maintenance service agreements and warranties.
2. Organize into suitable sets of manageable size, with separate section for each product, material, and finish.
 - a. Bind and index data in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, sized to receive 8-1/2-by-11-inch paper and in thickness necessary to accommodate contents, with pockets inside covers to receive folded oversized sheets..
 - b. Provide heavy paper dividers with plastic-covered tabs for each separate product. Mark tab to identify product or installation.
 - c. Identify each binder on front and spine with typed or printed title "PRODUCT MAINTENANCE MANUAL," Project name, and subject matter of contents.
 - d. Scan maintenance manual and assemble complete maintenance submittal package into single indexed electronic PDF file with links enabling navigation to each item. Provide table of contents at beginning of document.
3. Submit one set of binders and one scanned copy of maintenance manual package.

PART 2 PRODUCTS [Not Used]

PART 3 EXECUTION

3.1 SUBSTANTIAL COMPLETION

- A. Before requesting inspection for determining date of Substantial Completion, complete following. List items below that are incomplete with request.
 1. Prepare punch list, value of items on list, and reasons why Work is not complete.
 2. Deliver tools, spare parts, extra materials, and similar items to location designated by Owner. Label with manufacturer's name and model number where applicable.
 3. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
 4. Complete final cleaning requirements, including touchup painting.
 5. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.
- B. Request inspection for Substantial Completion. On receipt of request, Engineer will either proceed with inspection or notify Contractor of unfulfilled requirements. Engineer will prepare Certificate of Substantial Completion after inspection or will notify Contractor of

items, either on Contractor's list or additional items identified by Engineer, that must be completed or corrected before certificate will be issued.

1. Request re-inspection when Work identified in previous inspections as incomplete is completed or corrected.
2. Results of completed inspection will form basis of requirements for final completion.

3.2 FINAL COMPLETION

- A. Before requesting final inspection for determining final completion, complete following:
 1. Submit final Application for Payment.
 2. Submit copy of Engineer's Substantial Completion inspection punch list, endorsed and dated by Engineer, with statement that items on punch list have been completed or otherwise acceptably resolved.
 3. Submit executed warranties, maintenance service agreements, certifications of inspection and occupancy, paid utility bills, and similar documents.
 4. Prepare and submit Project Record Documents, operation and maintenance manuals, and similar final record information.
 5. Instruct Owner's personnel in maintenance of products installed.
- B. Request final inspection. On receipt of request, Engineer will either proceed with inspection or notify Contractor of unfulfilled requirements. Engineer will prepare final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.
 1. Request re-inspection when Work identified in previous inspections as incomplete is completed or corrected.

END OF SECTION

ARTICLE 1 - GENERAL**1.1 RELATED DOCUMENTS**

The following documents are a part of this section:

All documents in Bidding Requirements, Contract Forms and Conditions of the Contract.

Other sections of Division 1 - General Requirements apply to this section.

1.2 DESCRIPTION AND INTENT OF THE WORK

No asbestos containing material (ACM) shall be brought onto the Project site, and/or incorporated into the Project construction without the written consent of the OWNER. Any asbestos containing material found at any time including after contract completion, to have been brought onto the site or incorporated into the Project construction by the CONTRACTOR, or any Subcontractors, Sub-Subcontractors or Suppliers, shall be removed and disposed of in accordance with the then current governmental regulatory standards.

All costs associated with the inspection, sampling, testing, removal and disposal of ACM as described above shall be paid by the CONTRACTOR.

1.3 DEFINITIONS

ASBESTOS: The asbestiform varieties of serpentine (chrysotile), riebeckite (crocidolite) cummingtonite-grunerite (amosite), anthophyllite, actinolite and tremolite.

ASBESTOS CONTAINING MATERIAL (ACM): Any material containing more than one percent (1%) by weight of asbestos of any type or mixture of types.

ASBESTOS CONTAINING BUILDING MATERIAL (ACBM): Any material used in the construction of, or incorporated into the construction of, any building that contains more than one percent (1%) by weight of asbestos of any type or mixture of types.

MSDS: A material safety data sheet (MSDS) is a form containing data regarding the properties of component substances that comprise a manufactured product. They are a basic hazard communication tool that gives details on chemical and physical dangers, safety procedures, and emergency responses for chemicals.

1.4 QUALITY ASSURANCE**PROHIBITION OF ASBESTOS CONTAINING MATERIALS**

The E/A has been instructed to not permit any asbestos containing materials to be specified, requested or approved for use in conjunction with this Project.

The E/A has signed the following:

- A. 01900A Statement of Non-Inclusion of Asbestos Containing Material (E/A, Prior to Design): stating that the Engineer/Architect shall not specify, request or approve any ACM in this Project without prior written approval of OWNER.
- B. 01900B Statement of Non-Inclusion of Asbestos Containing Material (E/A, After Design): stating that the Engineer/Architect has not specified, requested or approved any ACM in this Project without the prior written approval of the OWNER, and that any ACM allowed in this Project is identified in the Statements.

These Statements are included in the Construction Documents.

ASBESTOS CONTAINING MATERIALS PROHIBITED FROM SITE

No asbestos containing materials will be permitted as part of the Project construction. The following list is intended to be used as a general guide to show which types of materials are suspected to contain asbestos:

coverings

carpet, ceiling tile, etc.)

penetrations)

- Spackling Compounds
- Laboratory hoods/tabletops
- CMU block fill materials

If any of these suspect materials are specified for use on the Project, and if they do not have specific labelling identifying them as asbestos free, then the CONTRACTOR shall notify the OWNER immediately. Laboratory analysis of the material by an OWNER-approved laboratory shall be performed at CONTRACTOR's expense in order to warrant that the material does not contain asbestos. A copy of the package labelling or results of laboratory testing must be provided to the OWNER prior to inclusion of the specified material during construction. Contractor's construction submittals must include MSDSs for all new materials used in construction of buildings, facilities and infrastructure.

1.5 SUBMITTALS

NON-USE OF ASBESTOS AFFIDAVITS

At the time that the CONTRACTOR signs the Agreement, they shall sign a Non-Use of Asbestos Affidavit (Contractor Prior to Construction), Contract Document 00680. This Affidavit certifies that the CONTRACTOR agrees that they will not allow any asbestos containing materials to be incorporated into the construction of the Project or allow any asbestos containing building materials on the site for which the OWNER has not given prior written approval.

Prior to final payment, the CONTRACTOR will provide to the OWNER a Non-Use of Asbestos Affidavit (Contractor After Construction), Contract Document 00681. This Affidavit certifies that the CONTRACTOR did not allow asbestos containing materials to be incorporated into the construction or allowed any asbestos containing building materials on the site for which the OWNER of the Project did not give prior written approval.

ASBESTOS CONTAINING MATERIALS: When any asbestos containing materials are used on the Project, provide the following information:

A detailed description of the material containing the asbestos.

The type and percent of asbestos contained in the material.

The quantity of the materials used, including the square footage, or in the case of pipe insulation, the size and linear footage.

A drawing showing the exact location of any asbestos containing materials.

Final payment shall be withheld until the above described Affidavits, submittals and/or information are received and approved.

END

STATEMENT OF NON-INCLUSION OF ASBESTOS CONTAINING MATERIALSTATE OF TEXAS
COUNTY OF TRAVIS**ENGINEER/ARCHITECT
PRIOR TO DESIGN**

"My name is Stephen W. Foster, hereinafter known as Authorized Representative.

"I am over the age of 18 years and I have never been convicted of a crime. I am the authorized representative of Wiss, Janney, Elstner Associates, Inc. hereinafter known as ENGINEER/ARCHITECT.

"I am fully competent to make this statement. I have personal knowledge of the facts set forth below and they are all true and correct.

"WHEREAS ENGINEER/ARCHITECT has been selected to provide designs, to prepare the bid and construction documents, and to assist

the City of Austin, Texas, hereinafter known as OWNER, during the construction of Exterior Tile Repairs at the District Cooling Plant II

410 Sabine Street, located at _____, Austin, Texas, hereinafter known as Project, and

"WHEREAS asbestos in a dust form is a recognized health hazard, and

"WHEREAS the OWNER desires not to have any asbestos containing materials used or incorporated into the construction of the Project;

"THEREFORE the ENGINEER/ARCHITECT affirms that to the best of its knowledge and belief:

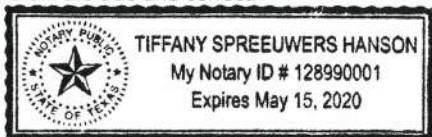
1. The ENGINEER/ARCHITECT, any person, firm or organization representing or represented by the ENGINEER/ARCHITECT, shall not knowingly specify, request, or approve for use in conjunction with the Project, any asbestos containing materials or any other materials defined as containing asbestos by any laws, rules or regulations promulgated by the United States Government, the State of Texas or any governmental organization or agency operating under the authority of either of those entities.
2. Realizing that there might be materials required in which a satisfactory non-asbestos containing material cannot be obtained, the ENGINEER/ARCHITECT will do the following before specifying any asbestos containing material:
 - A. Inform the OWNER's Project Manager for this Project, in writing, of any intent to specify asbestos containing materials.
 - B. Receive written approval from the City of Austin Project Manager for the specifying of any asbestos containing materials.
 - C. At the completion of the design phase, and before the OWNER receives any bids for this Project, provide to the Project Manager, in writing, the proposed location of any asbestos containing materials, the type of asbestos they contain, and the percent of asbestos by types.
3. The ENGINEER/ARCHITECT states its understanding that if any asbestos containing materials not approved by the OWNER for inclusion into the Project, are determined, as a result of any inspection and sample analysis performed by an individual(s) and/or firm(s) certified and/or licensed to perform such inspection by the United States Government and/or the State of Texas, to have been knowingly specified, requested and/or approved by the ENGINEER/ARCHITECT for inclusion in the Project, the OWNER shall look to the ENGINEER/ARCHITECT for reimbursement of any and all costs incurred in the removal and/or other abatement of said asbestos containing materials.
4. ENGINEER/ARCHITECT further understands that OWNER shall also look to the ENGINEER/ARCHITECT for any and all damages to OWNER which result from the inability of the OWNER to use any portion or all of the Project due to the incorporation of asbestos containing materials that have been knowingly specified, requested and/or approved by the ENGINEER/ARCHITECT.
5. ENGINEER/ARCHITECT further understands that OWNER will pursue reimbursement of any said cost and compensation for any said damages from the ENGINEER/ARCHITECT by any and every means within OWNER's right and power.


Signature of Authorized Representative: 

STATE OF TEXAS
COUNTY OF TRAVIS

ON October 5, 2018 personally appeared Stephen Foster

and been duly sworn by me, subscribed to the foregoing statement and has stated that the facts stated therein are true and correct.



Notary Public, State of Texas 

Printed Name of Notary Tiffany S. Hanson

My Commission Expires: 5/15/2020

01605A.00/110392

STATEMENT OF NON-INCLUSION OF ASBESTOS CONTAINING MATERIALSTATE OF TEXAS
COUNTY OF TRAVIS**ENGINEER/ARCHITECT
AFTER DESIGN**

"My name is Stephen W. Foster, hereinafter known as Authorized Representative.

"I am over the age of 18 years and I have never been convicted of a crime. I am the authorized representative of Wiss, Janney, Elstner Associates, Inc. hereinafter known as ENGINEER/ARCHITECT.

"I am fully competent to make this statement. I have personal knowledge of the facts set forth below and they are all true and correct.

"WHEREAS ENGINEER/ARCHITECT has been selected to provide designs, to prepare the bid and construction documents, and to assist the City of Austin, Texas, hereinafter known as OWNER, during the construction of Exterior Tile Repairs at the District Cooling Plant II

410 Sabine Street, located at Austin, Texas, hereinafter known as Project, and

"WHEREAS asbestos in a dust form is a recognized health hazard, and

"WHEREAS the OWNER desires not to have any asbestos containing materials used or incorporated into the construction of the Project;

"THEREFORE the ENGINEER/ARCHITECT affirms that to the best of its knowledge and belief:

1. The ENGINEER/ARCHITECT, any person, firm or organization representing or represented by the ENGINEER/ARCHITECT, shall not knowingly specify, request, or approve for use in conjunction with the Project, any asbestos containing materials or any other materials defined as containing asbestos by any laws, rules or regulations promulgated by the United States Government, the State of Texas or any governmental organization or agency operating under the authority of either of those entities.
2. The only exceptions to the above statement are the following materials that are required because a satisfactory non-asbestos containing material cannot be obtained. The inclusion of these materials has been approved by the OWNER's Project Manager for this Project.

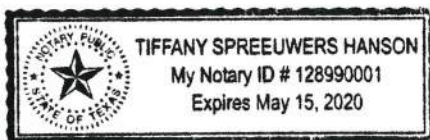
3. The ENGINEER/ARCHITECT states its understanding that if any asbestos containing materials not approved by the OWNER for inclusion into the Project, are determined, as a result of any inspection and sample analysis performed by an individual(s) and/or firm(s) certified and/or licensed to perform such inspection by the United States Government and/or the State of Texas, to have been knowingly specified, requested and/or approved by the ENGINEER/ARCHITECT for inclusion in the Project, the OWNER shall look to the ENGINEER/ARCHITECT for reimbursement of any and all costs incurred in the removal and/or other abatement of said asbestos containing materials.
4. ENGINEER/ARCHITECT further understands that OWNER shall also look to the ENGINEER/ARCHITECT for any and all damages to OWNER which result from the inability of the OWNER to use any portion or all of the Project due to the incorporation of asbestos containing materials that have been knowingly specified, requested and/or approved by the ENGINEER/ARCHITECT.
5. ENGINEER/ARCHITECT further understands that OWNER will pursue reimbursement of any said cost and compensation for any said damages from the ENGINEER/ARCHITECT by any and every means within OWNER's right and power.

Signature of Authorized Representative: [Signature]

STATE OF TEXAS
COUNTY OF TRAVIS

ON October 5, 2018 personally appeared Stephen Foster

and been duly sworn by me, subscribed to the foregoing statement and has stated that the facts stated therein are true and correct.

Notary Public, State of Texas [Signature]Printed Name of Notary Tiffany S. HansenMy Commission Expires: 5/15/2020

01605B/110392

ITEM NO. 104S - REMOVING PORTLAND CEMENT CONCRETE 9-26-12

104S.1 - Description

This item shall govern the demolition, removal and satisfactory disposal of existing Portland cement concrete, as classified, at locations indicated on the Drawings or as directed by the Engineer or designated representative.

This specification is applicable for projects or work involving either inch-pound or SI units. Within the text inch-pound units are given preference followed by SI units shown within parentheses.

104S.2 - Submittals

The submittal requirements of this specification item may include:

- A. A permit when utility adjustments are made in the right-of-way, and
- B. A plan for removal and deposition of all 'broken up' existing Portland cement (p.c.) concrete materials and debris.

104S.3 - Classification

Existing Portland cement concrete, when removed under this section, will be classified as follows:

- 1. Concrete Curb will include curb, curb and gutter and combinations thereof,
- 2. Concrete Slabs will include, but not be limited to, house slabs, patio slabs, porch slabs, concrete riprap and concrete pavement,
- 3. Sidewalks and Driveways will include concrete sidewalks and driveways,
- 4. Concrete Walls will include all walls, regardless of height, and wall footings,
- 5. Concrete Steps will include all steps and combinations of walls and steps,
- 6. Abandoned Foundations will include abandoned utility foundations,
- 7. Miscellaneous Concrete shall include all other concrete items, which are not identified in items 1 through 6 above.

104S.4 - Materials

Mortar shall conform to mortar specified in Standard Specification Item No. 403, "Concrete for Structures".

104S.5 - Construction Methods

Prior to commencement of this work, all required erosion control and tree protection measures shall be in place. The existing utilities shall be located and protected as specified in the Standard Contract Documents, Section 00700, "General Conditions". A permit shall be required when utility adjustments are to be made in preparation for highway construction, as specified in Section 5.2.0 of the City of Austin Utilities Criteria Manual.

The existing Portland cement concrete shall be broken up, removed in accordance with Item No. 101S, "Preparing Right of Way" and disposed of by the Contractor and deposited at a permitted disposal site.

When it is specified that only a portion of the existing Portland cement (p.c.) concrete is to be removed and that the remaining p.c. concrete will continue to serve its purpose, special care shall be exercised to avoid damage to that portion which will remain in place. Unless otherwise established by the Engineer or designated representative, existing p.c. concrete shall be cut to the neat lines, that are indicated on the

Drawings, by sawing with an appropriate type circular concrete saw to a minimum depth of ½ inch (12.5 mm). Any reinforcing steel encountered shall be cut off 1 inch (25 mm) inside of p.c. concrete sawed line. Any existing p.c. concrete, which is damaged or destroyed beyond the neat lines so established, shall be replaced at the Contractor's expense. Remaining p.c. concrete shall be mortared to protect the reinforcing steel and provide a neat clean appearance.

When reinforcement is encountered during the removal of portions of existing structures to be modified, a minimum of 1 foot (300 mm) of steel length shall be cleaned of all old p.c. concrete and left in place to tie into the new construction where applicable. All unsuitable material shall be removed and replaced with approved material. All foundations, walls or other objectionable material shall be removed to a minimum depth of 18 inches (450 mm) below all structures and 12 inches (300 mm) below areas to be vegetated.

104S.6 - Measurement

When included in the contract as a separate pay item, the removal of p.c. concrete curb and p.c. concrete wall as prescribed above will be measured by the lineal foot (meter: 1 meter is equal to 3.281 feet) in its original position regardless of the dimensions or size. The removal of p.c. concrete slabs, p.c. concrete sidewalks and driveways, as prescribed above, will be measured by the square foot (square meter: 1 square meter is equal to 10.764 square feet) in original position, regardless of the thickness and existence of reinforcing steel. Portland cement concrete steps removed will be measured per lineal foot (meter: 1 meter is equal to 3.281 feet) of each individual step tread including the bottom step. The removal of p.c. concrete foundations will be measured per each individual foundation. The removal of miscellaneous concrete will be measured per lump sum.

104S.7 - Payment

The work and materials presented herein will generally not be paid for directly, but shall be included in the unit price bid for the item of construction in which this item is used. When specified in the contract bid form as a separate pay item, the item will be paid for at the contract unit bid price(s) for "Remove P.C. Concrete Curb", "Remove P.C. Concrete Slab", "Remove P.C. Concrete Sidewalks and Driveways", "Remove P.C. Concrete Walls", "Remove P.C. Concrete Steps", "Remove P.C. Concrete Foundations" and "Remove Miscellaneous P.C. Concrete". The bid prices shall include full compensation for all Work herein specified, including the disposal of all material not required in the Work, the furnishing of all materials, equipment, tools, labor and incidentals necessary to complete the Work.

Payment will be made under one of the following:

Pay Item No. 104S-A:	Remove P.C. Concrete Curb	Per Lineal foot.
Pay Item No. 104S-B:	Remove P.C. Concrete Slab	Per Square foot.
Pay Item No. 104S-C:	Remove P.C. Concrete Sidewalks and Driveways	Per Square foot
Pay Item No. 104S-D:	Remove P.C. Concrete Wall	Per Lineal foot.
Pay Item No. 104S-E:	Remove P.C. Concrete Steps	Per Lineal foot.
Pay Item No. 104S-F:	Remove P.C. Concrete Foundations	Per Each.
Pay Item No. 104S-G:	Remove Miscellaneous P.C. Concrete	Per Lump Sum.

End

<u>SPECIFIC CROSS REFERENCE MATERIALS</u>	
<u>Specification Item 104S, "REMOVING CONCRETE"</u>	
<u>City of Austin Standard Contract Documents</u>	
<u>Designation</u>	<u>Description</u>
00700	General Conditions
<u>City of Austin Utilities Criteria Manual</u>	
<u>Designation</u>	<u>Description</u>
Section 5.2.0	Permit for Excavation in the Public Right-of-Way
<u>City of Austin Standard Specifications</u>	
<u>Designation</u>	<u>Description</u>
Item No. 101S	Preparing Right of Way
Item No. 110S	Street Excavation
Item No. 111S	Excavation
Item No. 120S	Channel Excavation
Item No. 132S	Embankment
Item No. 403	Concrete for Structures

Item No. 610S	Preservation of Trees and Other Vegetation
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<u>RELATED CROSS REFERENCE MATERIALS</u>	
<u>Specification Item 104S, "REMOVING CONCRETE"</u>	
<u>City of Austin Standard Contract Documents</u>	
<u>Designation</u>	<u>Description</u>
01500	Temporary Facilities
01550	Public Safety and Convenience
<u>The Code of the City of Austin, Code of Ordinances, Volume 1</u>	
<u>Designation</u>	<u>Description</u>
Article 15-12-166	Permit Required
Article 15-12-173	Conditions for Permit Issuance
Article 15-12-174	Permit Term
<u>City of Austin Standard Specifications</u>	
<u>Designation</u>	<u>Description</u>
Item No. 201S	Subgrade Preparation
Item No. 602S	Sodding for Erosion Control

Item No. 604S	Seeding for Erosion Control
Item No. 622S	Diversion Dike
Item No. 628S	Sediment Containment Dikes
Item No. 642S	Silt Fence
<u>City of Austin Standard Details</u>	
<u>Designation</u>	<u>Description</u>
610S-1	Tree Protection Fence Locations
610S-2	Tree Protection Fence, Type B Chainlink
610S-3	Tree Protection Fence, Type B Wood
610S-4	Tree Protection Fence, Modified Type A
610S-5	Tree Protection Fence, Modified Type B
621S-1	Diversion
622S-1	Diversion Dike
624S-1	Earth Outlet Sediment Trap
625S-1	Grade Stabilization Structure
627S-1	Grass Lined Swale
627S-2	Grass Lined Swale With Stone Center
628S	Triangular Sediment Filter Dike
628S-1	Hay Bale Dike
629S-1	Brush Berm

630S-1	Interceptor Dike
631S-1	Interceptor Swale
632S-1	Storm Inlet Sediment Trap
633S-1	Landgrading
634S-1	Level Spreader
635S-1	Perimeter Dike
636S-1	Perimeter Swale
637S-1	Pipe Slope Drain (Flexible)
637S-2	Pipe Slope Drain (Flexible)
638S-1	Pipe Outlet Sediment Trap
639S-1	Rock Berm
641S-1	Stabilized Construction Entrance
642S-1	Silt Fence
643S-1	Stone Outlet Structure
644S-1	Stone Outlet Sediment Trap
Texas Department of Transportation: <u>Standard Specifications for Construction and Maintenance of Highways, Streets, and Bridges</u>	
<u>Designation</u>	<u>Description</u>
Item No. 100	Preparing Right of Way
Item No. 104	Removing Concrete

Item No. 110	Excavation
Item No. 112	Subgrade Widening
Item No. 132	Embankment
Item No. 158	Specialized Excavation Work
Item No. 420	Concrete Structures

ITEM NO. 111S - EXCAVATION 9-26-12

111S.1 - Description

This item shall govern: (1) the excavation and proper utilization or satisfactory disposal of all excavated materials, of whatever character, within the limits of the Work and (2) construction, compaction, shaping and finishing of all designated earthwork areas in accordance with the specification requirements outlined herein and in conformity with the required lines, grades and typical cross sections indicated on the Drawings or as directed by the Engineer or designated representative. When not otherwise included in the Contract Documents, this item shall include the work described in Specification Item Nos. 101S, "Preparing Right of Way", No. 102S, "Clearing and Grubbing", No. 104S, "Removing Portland Cement Concrete", No. 132S "Embankment" and No. 201S, "Subgrade Preparation".

This specification is applicable for projects or work involving either inch-pound or SI units. Within the text inch-pound units are given preference followed by SI units shown within parentheses.

111S.2 - Submittals

The submittal requirements of this specification item may include:

- A. A permit when utility adjustments are made in the right-of-way,
- B. A plan for removal and deposition of all 'Waste' materials, and
- C. A Blasting Permit if blasting is required and allowed on the project.

111S.3 - Classification

All excavation shall be unclassified and shall include all materials encountered regardless of their nature or the manner in which they are removed.

111S.4 - Construction Methods

Prior to commencement of this work, all required erosion control and tree protection measures shall be in place. The existing utilities shall be located and shall be protected as specified in the Standard Contracts Document Section 00700, "General Conditions" and/or indicated on the Drawings. A permit shall be required when utility adjustments are to be made in preparation for construction in the right-of-way, as specified in Section 5.2.0 of the City of Austin Utilities Criteria Manual.

Construction equipment shall not be operated nor construction materials stockpiled under the canopies of trees, unless otherwise indicated on the Drawings. Excavation or embankment materials shall not be placed within the drip line of trees until tree wells are constructed, that conform to Specification Item No. 610S, "Preservation of Trees and Other Vegetation".

All excavation shall be performed as specified herein and shall conform to the established alignment, grades and cross sections indicated on the Drawings. Suitable excavated materials shall be utilized, insofar as practical, in constructing required embankments. The construction of all embankments shall conform to Specification Item No. 132S, "Embankment". No material shall be stockpiled within the banks of a waterway.

Unsuitable excavated materials or excavation in excess of that needed for construction shall be known as "Waste" and shall become the property of the Contractor. Unsuitable material encountered below the subgrade elevation in roadway cuts, when declared "Waste" by the Engineer or designated representative, shall be replaced with material from the roadway excavation or with other suitable material as approved by the Engineer. It shall become the Contractor's responsibility to dispose of this material off the limits of the right of way in an environmentally sound manner at a permitted disposal site.

All blasting shall conform to the Provisions of the Standard Contract Document Section 01550, "Public Safety and Convenience". In all cases, a Blasting Permit must be obtained in advance from the City of Austin, Public Works Department.

Adequate dewatering and drainage of excavation shall be maintained throughout the time required to complete the excavation work.

111S.5 - Measurement

All accepted excavation will be measured by either Method A or B as follows:

(1) Method A

Measurement of the volume of excavation in cubic yards (cubic meters: 1 cubic meter is equal to 1.308 cubic yards) by the average end area methods. Cross-sectional areas shall be computed from the existing ground surface to the established line of the subgrade, as shown on typical sections in the Drawings, over the limits of the right of way or other work limits, including parkway slopes and sidewalk areas.

(2) Method B

Measurement of the volume of excavation in cubic yards (cubic meters: 1 cubic meter is equal to 1.308 cubic yards) based upon the average end area method taken from pre-construction cross sections and planned grades. The planned quantities for excavation will be used as the measurement for payment for this item.

111S.6 - Payment

This item will be paid for at the contract unit bid price for "Excavation", as provided under measurement Method A or B as included in the bid. The bid price shall include full compensation for all work herein specified including dewatering, drainage, subgrade preparation, unless otherwise indicated, and the furnishing of all materials, equipment, tools, labor and incidentals necessary to complete the work.

Payment will be made under one of the following:

Pay Item No. 111S-A:	Excavation	Per Cubic Yard.
Pay Item No. 111S-B:	Excavation, Plan Quantity	Per Cubic Yard.

End

<u>SPECIFIC CROSS REFERENCE MATERIALS</u>	
<u>Specification Item 111S, "EXCAVATION"</u>	
<u>City of Austin Standard Contract Documents</u>	
<u>Designation</u>	<u>Description</u>

00700	General Conditions
01550	Public Safety and Convenience
<u>City of Austin Utilities Criteria Manual</u>	
<u>Designation</u>	<u>Description</u>
Section 5.2.0	Permit for Excavation in the Public Right-of-Way
<u>City of Austin Technical Specifications</u>	
<u>Designation</u>	<u>Description</u>
Item No. 101S	Preparing Right of Way
Item No. 102S	Clearing and Grubbing
Item No. 104S	Removing Portland Cement Concrete
Item No. 132S	Embankment
Item No. 201S	Subgrade Preparation
Item No. 236S	Proof Rolling
Item No. 610S	Preservation of Trees and Other Vegetation

<u>RELATED CROSS REFERENCE MATERIALS</u>
<u>Specification Item 111S, "EXCAVATION"</u>
<u>City of Austin Standard Contract Documents</u>

<u>Designation</u>	<u>Description</u>
01500	Temporary Facilities
<u>City of Austin Standard Specifications</u>	
<u>Designation</u>	<u>Description</u>
Item No. 120S	Channel Excavation
Item No. 203	Lime Treatment for Materials In Place
Item No. 204S	Portland Cement Treatment for Materials In Place
Item No. 230S	Rolling (Flat Wheel)
Item No. 232S	Rolling (Pneumatic Tire)
Item No. 234S	Rolling (Tamping)
Item No. 602S	Sodding for Erosion Control
Item No. 604S	Seeding for Erosion Control
Item No. 622S	Diversion Dike
Item No. 628S	Sediment Containment Dikes
Item No. 642S	Silt Fence
<u>City of Austin Standard Details</u>	
<u>Designation</u>	<u>Description</u>
No. 610S-1	Tree Protection Fence Locations
No. 610S-2	Tree Protection Fence, Type B Chainlink
No. 610S-3	Tree Protection Fence, Type B Wood

No. 610S-4	Tree Protection Fence, Modified Type A
No. 610S-5	Tree Protection Fence, Modified Type B
No. 621S-1	Diversion
No. 622S-1	Diversion Dike
No. 624S-1	Earth Outlet Sediment Trap
No. 625S-1	Grade Stabilization Structure
No. 627S-1	Grass Lined Swale
No. 627S-2	Grass Lined Swale With Stone Center
No. 628S	Triangular Sediment Filter Dike
No. 628S-1	Hay Bale Dike
No. 629S-1	Brush Berm
No. 630S-1	Interceptor Dike
No. 631S-1	Interceptor Swale
No. 632S-1	Storm Inlet Sediment Trap
No. 633S-1	Landgrading
No. 634S-1	Level Spreader
No. 635S-1	Perimeter Dike
No. 636S-1	Perimeter Swale
No. 637S-1	Pipe Slope Drain (Flexible)
No. 637S-2	Pipe Slope Drain (Flexible)
No. 638S-1	Pipe Outlet Sediment Trap

No. 639S-1	Rock Berm
No. 641S-1	Stabilized Construction Entrance
No. 642S-1	Silt Fence
No. 643S-1	Stone Outlet Structure
No. 644S-1	Stone Outlet Sediment Trap

The Code of the City of Austin, Code of Ordinances, Volume 1

<u>Designation</u>	<u>Description</u>
Article 15-12-166	Permit Required
Article 15-12-173	Conditions for Permit Issuance
Article 15-12-174	Permit Term

Texas Department of Transportation: Standard Specifications for Construction and Maintenance of Highways, Streets, and Bridges

<u>Designation</u>	<u>Description</u>
Item No. 100	Preparing Right of Way
Item No. 110	Excavation
Item No. 112	Subgrade Widening
Item No. 132	Embankment
Item No. 150	Blading
Item No. 158	Specialized Excavation Work

Item No. 160	Furnishing and Placing Topsoil
Item No. 164	Seeding for Erosion Control
Item No. 204	Sprinkling
Item No. 210	Rolling (Flat Wheel)
Item No. 211	Rolling (Tamping)
Item No. 213	Rolling (Pneumatic Tire)
Item No. 260	Lime Treatment for Materials Used as Subgrade (Road Mixed)
Item No. 265	Lime-Fly Ash (LFA) Treatment for Materials Used as Subgrade
Texas Department of Transportation: <u>Manual of Testing Procedures</u>	
<u>Designation</u>	<u>Description</u>
Tex-103-E	Determination of Moisture Content of Soil Materials
Tex-104-E	Determination of Liquid Limit of Soils
Tex-105-E	Determination of Plastic Limit of Soils
Tex-106-E	Method of Calculating the Plasticity Index of Soils
Tex-114-E	Laboratory Compaction Characteristics and Moisture-Density Relationship of Subgrade & Embankment Soil
Tex-115-E	Field Method for Determination of In-Place Density of Soils and Base Materials

ITEM NO. 201S - SUBGRADE PREPARATION 8-20-07

201S.1 - Description

This item shall govern scarifying; blading and rolling the subgrade to obtain a uniform texture and provide as nearly as practicable a uniform density for the top 6 inches (150 mm) of the subgrade.

This specification is applicable for projects or work involving either inch-pound or SI units. Within the text and accompanying tables, the inch-pound units are given preference followed by SI units shown within parentheses.

201S.2 - Submittals

The submittal requirements of this specification item may include:

- A. A plan identifying classification and characteristics (P.I., optimum moisture-density, etc.) of insitu subgrade soils, as well as the source, classification and characteristics of any proposed borrow material,
- B. Type and size of equipment proposed to produce the required compaction, and
- C. Compaction (moisture-density, etc) test results for in-situ subgrade soils and/or borrow materials.

201S.3 - Construction Methods

Prior to initiation of subgrade preparation activities, all operations involving Standard Specification Item No. 101S, "Preparing Right of Way" and/or Standard Specification Item No. 102S, "Clearing and Grubbing" shall be completed. The surface of the subgrade shall be scarified and shaped in conformity with the typical sections and the lines and grades indicated on the Drawings; by the removal of existing material or addition of approved material as established by the Engineer or designated representative. Any deviation in the subgrade cross section which exceeds ½ inch in a length of 10 feet (12 mm in a length of 3 meters), measured longitudinally, shall be corrected by loosening, adding or removing material, and then reshaping and compacting by sprinkling and rolling.

All unsuitable material shall be removed and replaced with approved material. All foundations, walls or other objectionable material shall be removed in accordance with Standard Specification Item No. 104S, "Removing Portland Cement Concrete" to a minimum depth of 18 inches (450 mm) under all structures and 12 inches (300 mm) under areas to be vegetated. All holes, ruts and depressions shall be filled with approved material and compacted by approved methods.

The subgrade shall be prepared sufficiently in advance to insure satisfactory prosecution of the Work. The Contractor will be required to set blue tops for the subgrade on the centerline, at the quarter points and along the curb lines or edge of pavement at maximum intervals of 50 feet (15 meters). The subgrade shall be tested by proof rolling in conformity with Standard Specification Item No. 236S, "Proof Rolling" prior to placement of the first course of base material. Any unstable or spongy subgrade areas identified by proof rolling shall be corrected either by additional re-working, drying and compaction, or by removal and replacement of unsuitable materials. When specifically directed by the Engineer or designated representative, the Contractor shall re-work the subgrade* as follows:

- A. Remove the unstable subgrade to the full depth of the unstable insitu material or to a minimum depth of 6 inches (150 mm), whichever is greater;
- B. Spread the material over a sufficient area to allow reworking of the excavated material;
- C. Disc, scarify or otherwise breakup the excavated material and allow to dry (Note: If approved by the Engineer or designated representative, the addition of lime or other additive may be used to aid in the drying process or to stabilize the unstable material);
- D. Fill the excavated area with the re-worked material and compact to specified densities; and

E. Proof roll the re-worked area.

- * The Rework process will not be allowed for unstable organic subgrade soils. These type soils will be permanently removed and replaced with materials approved by the Engineer or designated representative.

All suitable material removed in accordance with Standard Specification Item No. 111S, "Excavation", may be utilized in the subgrade with the approval of the Engineer or designated representative. All other material required for completion of the Subgrade, including those defined in accordance with Specification Item No. 130S, "Borrow", shall also be subject to approval by the Engineer or designated representative.

It is the intent of this specification to provide the required density and moisture control for the subgrade based on the plasticity characteristics of the approved materials. The subgrade materials shall be sprinkled as required and compacted to the extent necessary to provide the density specified below, unless otherwise indicated on the Drawings. The Plasticity Index (P.I.) will be established in accordance with TxDOT Test Methods Tex-104-E, Tex-105-E and Tex-106-E. The density determination will be made in accordance with TxDOT Test Method Tex-114-E and field density measurements will be made in accordance with TxDOT Test Method Tex-115-E.

Description	Density, Percent	Moisture
Non-swelling Soils (P.I. less than 20)	Not less than 95	
Swelling Soils (P.I. between 20 and 35)	Not less than 95 nor more than 102	Not less than optimum
Swelling Soils (P.I. greater than 35)	Not less than 95 nor more than 100	Not less than optimum

Subgrade materials on which planting or turf will be established shall be compacted to a minimum of 85 percent of the density as determined in accordance with TxDOT Test Method Tex-114-E. Field tests for density in accordance with TxDOT Test Method Tex-115-E will be made as soon as possible after compaction operations are completed. If the material fails to meet the density specified, it shall be reworked as necessary to obtain the density required.

Prior to placement of any base materials, the in-place density and moisture content of the top 6 inches (150 mm) of compacted subgrade shall be checked. If the tests indicate that the relative density and moisture do not meet the limits specified in the table above, the subgrade shall be reworked as necessary to obtain the specified compaction and moisture content. All initial testing will be paid for by the City of Austin. All retesting shall be paid for by the Contractor.

201S.4 - Measurement

All acceptable subgrade preparation when included in the contract as a separate pay item, will be measured by the square yard (square meter: 1 square meter equals 1.196 Square yards). The measured area includes the entire width of the roadway for the entire length as indicated on the Drawings.

201S.5 - Payment

The work and materials presented herein will generally not be paid for directly, but shall be included in the unit price bid for the item of construction in which this item is used when specified as a separate pay item in the contract bid form, subgrade preparation shall be measured as specified above and paid for at the contract unit bid price for "Subgrade Preparation". The bid price shall include full compensation for all

work herein specified, including the furnishing of all materials, equipment, tools and labor and incidentals necessary to complete the work.

Payment, when included as a contract pay item, will be made under:

Pay Item No. 201S:	Subgrade Preparation	Per Square Yard.
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End

<u>SPECIFIC CROSS REFERENCE MATERIALS</u>	
<u>Specification Item 201S, "SUBGRADE PREPARATION"</u>	
<u>City of Austin Standard Specification Items</u>	
<u>Designation</u>	<u>Description</u>
Item No. 101S	Preparing Right of Way
Item No. 102S	Clearing and Grubbing
Item No. 104S	Removing Portland Cement Concrete
Item No. 110S	Street Excavation
Item No. 111S	Excavation
Item No. 130S	Borrow
Item No. 236S	Proof Rolling

Texas Department of Transportation: <u>Manual of Testing Procedures</u>	
<u>Designation</u>	<u>Description</u>
Tex-103-E	Determination of Moisture Content of Soil Materials
Tex-104-E	Determination of Liquid Limit of Soils
Tex-105-E	Determination of Plastic limit of Soils
Tex-106-E	Method of Calculating the Plasticity Index of Soils
Tex-114-E	Laboratory Compaction Characteristics & Moisture Density Relationship of Subgrade & Embankment Soil
Tex-115-E	Field Method for Determination of In-Place Density of Soils & Base Materials

<u>RELATED CROSS REFERENCE MATERIALS</u>	
<u>Specification Item 201S, "SUBGRADE PREPARATION"</u>	
<u>City of Austin Standard Specifications</u>	
<u>Designation</u>	<u>Description</u>
Item No.132S	Embankment
Texas Department of Transportation: <u>Standard Specifications for Construction and Maintenance of Highways, Streets, and Bridges</u>	
<u>Designation</u>	<u>Description</u>
Item No. 100	Preparing Right of Way
Item No. 110	Excavation

Item No. 112	Subgrade Widening
Item No. 132	Embankment
Item No. 150	Blading
Item No. 158	Specialized Excavation Work
Item No. 204	Sprinkling
Item No. 210	Rolling (Flat Wheel)
Item No. 211	Rolling (Tamping)
Item No. 213	Rolling (Pneumatic Tire)
Texas Department of Transportation: <u>Manual of Testing Procedures</u>	
<u>Designation</u>	<u>Description</u>
Tex-103-E	Determination of Moisture Content of Soil Materials

ITEM NO. 403S - CONCRETE FOR STRUCTURES 9-26-12

403S.1 - Description

This item shall govern quality, storage, handling, proportioning and mixing of materials for hydraulic cement concrete construction of buildings, bridges, culverts, slabs, prestressed concrete and incidental appurtenances.

This specification is applicable for projects or work involving either inch-pound or SI units. Within the text, the inch-pound units are given preference followed by SI units shown within parentheses.

403S.2 - Submittals

The submittal requirements of this specification item may include:

- A. Mix design option(s) of the class of concrete required on the project,
- B. The supplier of the concrete mix design(s) and type of mixing equipment, and
- C. Type of admixtures to be used with the concrete mixes.

403S.3 - Materials

Concrete shall be composed of hydraulic cement or hydraulic cement and supplementary cementing materials, water, aggregates (fine and coarse), and admixtures proportioned and mixed as hereinafter provided to achieve specified results.

A. Cementitious Materials

Hydraulic cement shall conform to ASTM C 150, Type I (General Purpose), Type II (General Purpose with Moderate Sulfate Resistance) and Type III (High Early Strength). Type I shall be used when none is specified or indicated on the drawings. Type I and Type III cements shall not be used when a Type II cement is specified or indicated on the drawings. Type III cement may be used in lieu of a Type I cement, when the anticipated air temperature for the succeeding 12 hours will not exceed 60°F (15.6°C). A Type III cement shall only be used in precast concrete or when otherwise specified or allowed. All cement shall be of the same type and from the same source for a monolithic placement.

Unless otherwise specified the cementitious material content shall be limited to no more than 700 lbs. per cubic yard (417 kg per cubic meter). When supplementary cementing materials are used, cement is defined as "cement plus supplementary cementing material." Supplementary cementing materials include fly ash (DMS 4610), ultra-fine fly ash (DMS-4610), ground granulated blast furnace slag grade 100 or 120 (DMS-4620), silica fume (DMS-4630) and metakaolin (DMS-4635).

Supplementary cementing materials shall not be used when white hydraulic cement is specified.

Class C flyash shall not be used in sulfate-resistant concrete.

Hydraulic cement manufactured in a cement kiln fueled by hazardous waste shall be considered as an approved product if the production facility is authorized to operate under regulation of the Texas Commission on Environmental Quality (TCEQ) and the U.S. Environmental Protection Agency (EPA). Supplier shall provide current TNRCC and EPA authorizations to operate the facility.

When sulfate-resistant concrete is required for a project, mix design options 1, 2, 3 or 4 presented in Section 403S.8, "Mix Design Options" shall be used to develop appropriate mix design utilizing Type I/II, II, V, IP or IS cement.

B. Mixing Water

Water for use in concrete and for curing shall be potable water free of oils, acids, organic matter or other deleterious substances and shall not contain more than 1,000 parts per million of chlorides as Cl or sulfates as SO₄.

Water from the City of Austin will not require testing. Contractor may request approval of water from other sources. Contractor shall arrange for samples to be taken from the source and tested at the Contractor's expense. When water from other sources is proposed, test reports shall be provided that indicates compliance with Table 1 before use.

Table 1: Chemical Limits for Mix Water		
Contaminant	Test Method	Maximum Concentration (ppm)
Chloride (CL) Prestressed concrete Bridge decks & superstructure All other concrete	ASTM D-512	500
		500
		1,000
Sulfate (SO ₄)	ASTM D-516	1,000
Alkalies (NA ₂ O + 0.658 K ₂ O)	ASTM D-4191 & D-4192	600
Total Solids	AASHTO T-26	50,000

Water that has an adverse effect on the air-entraining agent or any other chemical admixture or on strength or time of set of the concrete shall not be used. Water used in white Portland cement concrete shall be free from iron and other impurities, which may cause staining, or discoloration.

C. Coarse Aggregate

Coarse aggregate shall consist of durable particles of crushed or uncrushed gravel, crushed blast furnace slag, crushed stone or combinations thereof; free from frozen material or injurious amounts of salt, alkali, vegetable matter or other objectionable material either free or as an adherent coating. When white hydraulic cement is specified, the coarse aggregates used in the concrete shall be light colored. Quality shall be reasonably uniform throughout.

The coarse aggregate from each source shall not contain more than 0.25 percent by weight of clay lumps, nor more than 1.0 percent by weight of shale nor more than 5 percent by weight of laminated and/or friable particles when tested in accordance with TXDOT Test Method TEX-413-A. The coarse aggregate from each source shall have a wear of not more than 40 percent when tested in accordance with TXDOT Test Method TEX-410-A.

Unless otherwise indicated on the drawings, the coarse aggregate from each source shall be subjected to 5 cycles of the soundness test conforming to TXDOT Test Method TEX-411-A. The loss shall not be greater than 12 percent when sodium sulfate is used or 18 percent when magnesium sulfate is used.

Coarse aggregate shall be washed. The Loss by Decantation (TXDOT Test Method TEX-406-A), plus allowable weight of clay lumps, shall not exceed 1 percent or the value indicated on the drawings or in the project manual, whichever is less. If material finer than the # 200 (75 micrometer) sieve is definitely established to be dust or fracture of aggregates made primarily from crushing of stone, essentially free from clay or shale as established by Part III of TXDOT Test Method TEX-406-A, the percent may be increased to 1.5. When crushed limestone coarse aggregate is used in concrete pavements, the decant may exceed 1% but not more than 3% if the material finer than the #200 (75 micrometer) sieve is determined to be at least 67% calcium carbonate in accordance with TxDoT Test Method Tex-406-A, Part III.

The coarse aggregate factor may not be more than 0.82; however, when voids in the coarse aggregate exceed 48 percent of the total rodded volume, the coarse aggregate factor shall not exceed 0.85. The coarse aggregate factor may not be less than 0.68 except for a Class I machine extruded mix that shall not have a coarse aggregate factor lower than 0.61.

When exposed aggregate surfaces are required, the coarse aggregate shall consist of particles with at least 40 percent crushed faces. Uncrushed gravel, polished aggregates and clear resilient coatings are not acceptable for exposed aggregate finishes.

When tested by approved methods, the coarse aggregate including combinations of aggregates when used, shall conform to the grading requirements shown in Table 2.

Table 2: Coarse Aggregate Gradation Chart (Percent Passing)										
Grade	Nom. Size	2½" (62.5mm)	2" (50mm)	1½" (37.5mm)	1" (25mm)	¾" (19mm)	½" (12.5mm)	3/8" (9.5mm)	No. 4 (4.75mm)	No. 8 (2.36mm)
1	2" (50 mm)	100	80—100	50—85		20—40			0—5	
2 (467) *	1½" (37.5 mm)		100	95—100		35—70		10—30	0—5	
3	1" (50 mm)		100	95—100		60—90	25—60		0—5	
4 (57)*	1" (50 mm)			100	95—100		25—60		0—10	0—5
5 (67)*	¾" (19 mm)				100	90—100		20—55	0—10	0—5
6 (7)*	½" (12.5 mm)					100	90—100	40—70	0—15	0—5

7	3/8" (9.5 mm)						100	70—95	0—25	
8	3/8" (9.5 mm)						100	95—100	20—65	0—10

Notes:

1. Recycled crushed concrete fine aggregate shall be limited to a maximum of 20% of the fine aggregate.
2. The use of recycled crushed hydraulic cement concrete as a coarse aggregate shall be limited to Concrete Classes A, B and D (see Table 5).

D. Fine Aggregate

Fine aggregate shall be washed and consist of clean, hard, durable and uncoated particles of natural or manufactured sand or a combination thereof, with or without a mineral filler. When white hydraulic cement is specified, the fine aggregates used in the concrete shall be light colored. Quality shall be reasonably uniform throughout. It shall be free from frozen material or injurious amounts of salt, alkali, vegetable matter or other objectionable material and it shall not contain more than 0.5 percent by weight of clay lumps in accordance with TEX-413-A. When subjected to color test for organic impurities per TXDOT Test Method TEX-408-A, it shall not show a color darker than standard.

Unless indicated otherwise on the drawings the acid insoluble residue of fine aggregate used in slab concrete subject to direct traffic shall not be less than 60 percent by weight (mass) when tested conforming to TXDOT Test Method TEX-612-J.

Unless indicated otherwise on the Drawings, fine aggregate shall be blended, when necessary, to meet the acid insoluble residue requirement.

When blending the following equation shall be used:

$$\text{Acid Insoluble (\%)} = \{(A1)(P1) + (A2)(P2)\} / 100$$

Where:

A1 = acid insoluble (%) of aggregate 1,

A2 = acid insoluble (%) of aggregate 2,

P1 = % by weight of A1 of the fine aggregate blend, and

P2 = % by weight of A2 of the fine aggregate blend.

When tested in accordance with TxDoT Test Method Tex-401-A, the fine aggregate, including mineral filler and combinations of aggregates, when used, shall conform to the grading requirements shown in Table 3.

Table 3: Fine Aggregate Gradation Chart ¹(Grade 1 - Percent Passing)							
3/8 (9.5 mm)	No. 4 (4.75 mm)	No. 8 (2.36 mm)	No. 16 (1.18mm)	No. 30 (600 μm)	No. 50 (300 μm)	No. 100 (150 μm)	No. 200 (75 μm)
100	95—100	80—100	50—85	25—65	10—35	0—10	0—32

Notes:

1. Recycled crushed concrete fine aggregate shall be limited to a maximum of 20% of the fine aggregate.
2. The use of recycled crushed hydraulic cement concrete as a fine aggregate shall be limited to Concrete Classes A, B and D (see Table 5).
3. 6 to 35 when sand equivalent value is greater than 85.
4. 0 to 6 for manufactured sand.

Sand equivalent per TXDOT Test Method TEX-203-F shall not be less than 80 nor less than otherwise indicated on the drawings, whichever is greater.

The fineness modulus will be determined by adding the percentages by weight retained on sieve Nos. 4, 8, 16, 30, 50 and 100 (4.75 mm, 2.36 mm, 1.18mm, 600 μm, 300 μm, and 150 μm) and dividing the sum of the six sieves by 100. For all classes of concrete except K (see Table 5), the fineness modulus shall be between 2.30 and 3.10. For Class K concrete, the fineness modulus shall be between 2.40 and 2.90, unless indicated otherwise on the Drawings.

E. Mineral Filler

Mineral filler shall consist of stone dust, clean crushed sand or other approved inert material. When tested in accordance with TxDoT Test Method Tex-401-A, it shall conform to the following gradation:

Passing the No. 30 (600 μm) Sieve	100 percent
Passing the No. 200 (75 μm) Sieve	65 to 100 percent

F. Mortar and Grout

Unless otherwise specified, indicated on the drawings or approved by the Engineer or designated representative mortar and grout shall consist of 1 part cement, 2 parts finely graded sand and enough water to make the mixture plastic. When required to prevent color difference, white cement shall be added to produce color required. When required by the Engineer or designated representative, approved latex adhesive may be added to the mortar. Mortar shall be provided with a consistency such that the mortar can be easily handled and spread by trowel. Grout shall be provided of a consistency that will flow into and completely fill all voids.

G. Admixtures

All chemical admixtures including water reducing, plasticizers and air entrainment shall conform to TxDoT DMS-4640, "Chemical Admixtures for Concrete". Calcium chloride-based admixtures shall not be approved. Admixtures shall be included in the prequalified concrete admixtures list maintained by TxDoT's Construction Division. High-range water-reducing admixtures (TxDoT Type F or G) and accelerating admixtures (TxDoT Type C or E) shall not be used in bridge deck concrete.

H. Air Entrainment

Unless indicated otherwise on the drawings, all concrete classes with the exception of Class B shall be air entrained in accordance with Table 8. If the air content is more than 1½ percentage points below or 3 percentage points above the required air, the load of concrete will be rejected. If the air content is more than 1½ but less than 3 percentage points above the required air, the concrete may be accepted based on strength test results.

403S.4 - Storage of Materials

A. Cement, Supplementary Cementing Materials and Mineral Filler

All cement, supplementary cementing materials and mineral filler shall be stored in separate and well ventilated, weatherproof buildings or approved bins, which will protect the material from dampness or absorption of moisture. Storage facilities shall be easily accessible and each shipment of packaged cement shall be kept separated to provide for identification and inspection. The Engineer or designated representative may permit small quantities of sacked cement to be stored in the open for a maximum of 48 hours on a raised platform and under waterproof covering.

B. Aggregates

The method of handling and storing concrete aggregates shall prevent contamination with foreign materials. If the aggregates are stored on the ground, the sites for the stockpiles shall be clear of all vegetation and shall be level. Aggregates shall be stockpiled in sizes to facilitate blending. If the aggregate is not stockpiled on a hard, non-contaminant base, the bottom 6-inch (150 mm) layer of the stockpile shall not be used without recleaning the aggregate.

When conditions require the use of 2 or more grades of coarse aggregates, separate stockpiles shall be maintained to prevent intermixing. Where space is limited, stockpiles shall be separated by walls or other appropriate barriers.

Aggregate shall be stockpiled and protected from the weather a minimum of 24 hours prior to use to minimize free moisture content. When stockpiles are too large to protect from the weather, accurate and continuous means acceptable to the Engineer or designated representative shall be provided to monitor aggregate temperature and moisture. Aggregates shall be stockpiled and handled such that segregation and contamination are minimized.

The stockpiles shall be sprinkled to control moisture and temperature as necessary. A reasonably uniform moisture content shall be maintained in aggregate stockpiles.

C. Admixtures

Admixtures shall be stored in accordance with manufacturer's recommendations and shall be protected against freezing.

D. Hot Weather Concrete Mixes

Ice may be used during hot weather concrete placement (Section 13 of Standard Specification Item No. 410S, "Concrete Structures") to lower the concrete temperature; however, the Contractor shall furnish a mix design acceptable to the Engineer or designated representative for class of concrete specified. The addition of ice shall not exceed 50% of the total mix water weight.

403S.5 - Measurement of Materials

Water shall be accurately metered. Fine and coarse aggregates, mineral filler, bulk cement and fly ash shall be weighed separately. Allowances shall be made in the water volume and aggregate weights during batching for moisture content of aggregates and admixtures. Volumetric and weight measuring devices shall be acceptable to the Engineer or designated representative. Measurement of materials in non-volumetric and volumetric mixers shall conform to Section 421.4.D of TxDot Specification Item 421, "Hydraulic Cement Concrete".

Batch weighing of sacked cement is not required; however, bags, individually and entire shipments, may not vary by more than 3 percent from the specified weight of 94 pounds (42.6 kilograms) per bag. The average bag weight of a shipment shall be determined by weighing 50 bags taken at random.

403S.6 - Mix Design

The Contractor shall furnish a mix design acceptable to the Engineer or designated representative for the class of concrete required in accordance with Table 5. The mix shall be designed by a qualified commercial laboratory and signed/sealed by a registered Professional Engineer, licensed in the state of Texas to conform with requirements contained herein, to ACI 211.1 or TXDOT Bulletin C-11 (and supplements thereto). The maximum water-to-cementitious material ratio identified in Table 5 for specific classes of concrete shall not be exceeded.

A higher-strength class of concrete with equal or lower water-to-cementitious-material ratio may be substituted for the specified class of concrete.

The mix design shall be over-designed in accordance with Table 5 in order to account for production variability and to ensure minimum compressive strength requirements are met.

Allowable mix design options are presented in Section 403S.8.

The Contractor shall perform, at the Contractor's expense, the work required to substantiate the design, including testing of strength specimens. Complete concrete design data shall be submitted to the Engineer or designated representative for approval. The mix design will be valid for a period of one (1) year provided that there are no changes to the component materials.

When there are changes in aggregates or in type, brand or source of cement, supplementary cementing material or chemical admixtures, the mix shall be evaluated as a new mix design. A change in vendor does not necessarily constitute a change in materials or source. When only the brand or source of cement is changed and there is a prior record of satisfactory performance of the cement with the ingredients, the submittal of new trial batches may be waived by the Engineer or designated representative.

At the end of one (1) year, a previously approved mix may be resubmitted for approval if it can be shown that no substantial change in the component materials has occurred and that test results confirming the adequacy of the mix designs have been acquired during the previous year. The resubmittal analysis must be reviewed, signed and sealed by a registered Professional Engineer, licensed in the state of Texas. This resubmittal shall include a reanalysis of specific gravity, absorption, fineness modulus, sand equivalent, soundness, wear and unit weights of the aggregates. Provided that the fineness modulus did not deviate by more than 0.20 or that the re-proportioned total mixing water, aggregate and cement (or cement plus fly ash) are within 1, 2, and 3 percent, respectively, of pre-approved quantities, a one-year extension on the approval of the mix may be granted by the Engineer or designated representative. Updated cement, fly ash, and admixture certifications shall accompany the resubmittal.

Approved admixtures that are included in the prequalified concrete admixtures list maintained by TxDot's Construction Division may be used with all classes of concrete at the option of the Contractor provided that specific requirements of the governing concrete structure specification are met. Water reducing and retarding agents shall be required for hot weather, large mass, and continuous slab placements. Air entraining agents may be used in all mixes but must be used in the classes indicated on Table 5. Unless

approved by the Engineer or designated representative, mix designs shall not exceed air contents for extreme exposure conditions as recommended by ACI 211.1 for the various aggregate grades.

403S.7 - Consistency and Quality of Concrete

Concrete shall be workable, cohesive, possess satisfactory finishing qualities and of stiffest consistency that can be placed and vibrated into a homogeneous mass within slump requirements specified in Table 4 without the development of segregation or honeycombing. No concrete will be permitted with a slump in excess of the maximums shown unless water-reducing admixtures have been previously approved. Concrete that exceeds the maximum acceptable placement slump at time of delivery will be rejected. Slump values shall be conducted in accordance with TXDOT Test Method TEX-415-A.

Consistency and quality of concrete should allow efficient placement and completion of finishing operations before initial set. Re-tempering (i.e. addition of water and reworking concrete after initial set) shall not be allowed. When field conditions are such that additional moisture is needed for final concrete surface finishing operation, the required water shall be applied to surface by fog spray only and shall be held to a minimum. Excessive bleeding shall be avoided and in no case will it be permissible to expedite finishing and drying by sprinkling the surface with cement powder.

Table 4: Slump Requirements		
	Slump ¹, inches (mm)	
Type of Construction	Maximum	Minimum
Cased Drilled Shafts	4 (100)	3 (75)
Reinforced Foundation Caissons and Footings	3 (75)	1 (25)
Reinforced Footings and Substructure Walls	3 (75)	1 (25)
Uncased Drilled Shafts	6 (150)	5 (125)
Thin-walled Sections; 9 inches (225 mm) or less	6½ (165)	4 (100)
Prestressed Concrete Members ¹	6½ (165)	4 (100)
Precast Drainage Structures	6 (150)	4 (100)
Wall Sections over 9 inches (225 mm)	5 (125)	3 (75)
Reinforced Building Slabs, Beams, Columns and Walls	4 (100)	1 (25)
Bridge Decks	4 (100)	2 (50)
Pavements, Fixed-form	6½ (165)	4 (100)

Pavements, Slip-form	3 (75)	1½ (37.5)
Sidewalks, Driveways and Slabs on Ground	4 (100)	2 (50)
Curb & Gutter, Hand-vibrated	3 (75)	1 (25)
Curb & Gutter, Hand-tamped or spaded	4 (100)	2 (50)
Curb & Gutter, Slip-form/extrusion machine	2 (50)	½ (12.5)
Heavy Mass Construction	2 (50)	1 (25)
High Strength Concrete	4 (100)	3 (75)
Riprap and Other Miscellaneous Concrete	6 (150)	1 (25)
Under Water or Seal Concrete	8½ (213)	6 (150)

1. Slump values when a high range water reducer (HRWR) is not used.
2. When a high range water reducer (HRWR) is used, maximum acceptable placement slump will be 9 in (225 mm).

During progress of the work, the Engineer or designated representative shall cast test cylinders as a check on compressive strength of concrete actually placed. The Engineer or designated representative may also perform slump tests, entrained air tests and temperature checks to ensure compliance with specifications.

Proportioning of all material components shall be checked prior to discharging. Excluding mortar material for pre-coating of the mixer drum [see section 403S.8.B] and adjustment for moisture content of admixtures and aggregates, material components shall fall within the range of + 1% for water, + 2% for aggregates, + 3% for cement, +2% for fly ash and within manufacturer recommended dosage rates for admixtures except that air entrainment shall be within + 1½ percentage points of the mix design requirements.

Unless otherwise specified or indicated on the drawings, concrete mix temperature shall not exceed 90°F (32°C) except in mixes with high range water reducers where a maximum mix temperature of 100°F (38°C) will be allowed. Cooling an otherwise acceptable mix by addition of water or ice during agitation will not be allowed.

Test cylinders will be required for small placements such as manholes, inlets, culverts, wing walls, etc. The Engineer or designated representative may vary the number of tests to a minimum of 1 for each 25 cubic yards (1 for each 19 cubic meters) placed over a several day period.

Test cylinders shall be required for each monolithic placement of bridge decks or superstructures, top slabs of direct traffic culverts, cased drilled shafts, structural beams and as otherwise directed by Engineer or designated representative for design strength confirmation or early form removal. Test

cylinders made for early form removal or for consideration of use of structure will be at Contractor's expense, except when required by Engineer or designated representative.

A strength test shall be defined as the average breaking strength of 2 cylinders. A minimum of four test cylinders shall be prepared; two each to be tested at 7 and 28 days. Specimens will be tested conforming to TXDOT Test Method TEX-418-A. If required strength or consistency of class of concrete being produced cannot be secured with minimum cementitious material specified or without exceeding maximum water/cementitious material ratio, Contractor will be required to furnish different aggregates, use a water reducing agent, an air entraining agent or increase the cement content in order to provide concrete meeting these specifications.

Slump tests will be performed in accordance with TxDoT Test Method Tex-415-A. Entrained air tests will be performed in accordance with TxDoT Test Method Tex-416-A.

Test specimens shall be cured using the same methods and under the same conditions as the concrete represented. Design strength cylinders shall be cured conforming to TXDOT Bulletin C-11 (and supplements thereto).

When control of concrete quality is by 28-day compressive tests, job control testing will be by 7-day compressive strength tests. The minimum strength requirement for seven (7) day test will be 70 percent of the specified minimum 28-day compressive strength. If the required 7-day strength is not secured with the quantity of cement specified in Table 4, changes in the mix design shall be made and resubmitted for approval. For an occasional failure of the seven-day compressive test, the concrete may be tested at 28 days for final evaluation.

Table 5: Classes of Concrete						
Class	Cement Sks Per CY	Minimum Strength, psi (MPa)		Maximum W/C Ratio ¹	Coarse Aggr. Grade _{2,3,4}	Air Entrain.
		28 Days	7 Days			
A	5.0 (280 kg/m ³)	3000 (20.6)	2100 (14.5)	0.6	1,2,3,4,8	Yes
B	4.0 (225 kg/m ³)	2000 (13.8)	1400 (9.7)	0.6	2,3,4,5,6,7	No
C ⁵	6.0 (335 kg/m ³)	3600(24.8)	2520 (17.4)	0.45	1,2,3,4,5,6	Yes
D	4.5 (252 kg/m ³)	2500 (17.2)	1750 (12.1)	0.6	2,3,4,5,6,7	No
H ⁵	6.0 (335 kg/m ³)	As indicated	As Indicated	0.45	3,4,5,6	Yes

I	5.5 (308 kg/m ³)	3500 (24.1)	2450 (16.9)	0.45	2,3,4,5	Yes
J	2.0 (112 kg/m ³)	800 (5.5)	560 (3.9)	N/A	2,3,4,5	No
S ⁵	6.0 (335 kg/m ³)	4000 (27.6)	2800 (19.3)	0.45	2,3,4,5	Yes

Notes:

1. Maximum water-cement or water-cementitious ratio by weight
2. Unless otherwise allowed, Grade 1 coarse aggregate shall only be used in massive foundations with 4-in (100-mm) minimum clear spacing between reinforcing steel bars.
3. Grade 1 coarse aggregate grading shall not be used in drilled shafts.
4. Unless otherwise allowed, Grade 8 coarse aggregate shall be used in extruded curbs.
5. Structural concrete classes.
6. When Type II cement is used in Class C, S or A concrete, the 7-day compressive strength requirement will be 2310 psi (15.9 MPa) for Class C, 2570 psi (17.7 MPa) for Class S and 1925 psi (13.3 MPa) for Class A minimum.

Table 6: Over Design Required to Meet Compressive Strength Requirements ¹					
Number Of Tests ^{2,3}	Standard Deviation, psi (MPa)				
	300 (2.06)	400 (2.75)	500 (3.44)	600 (4.13)	700 (4.82)
15	470 (3.24)	620 (4.27)	850 (5.85)	1,120 (7.71)	1,390 (9.57)
20	430 (2.96)	580 (3.99)	760 (5.23)	1,010 (6.95)	1,260 (8.67)
30 or more	400 (2.75)	530 (3.65)	670 (4.61)	900 (6.20)	1,130 (7.78)

Notes:

1. When designing the mix, add the tabulated amounts to the minimum design strength in Table 5. Maximum water-cement or water-cementitious ratio by weight

2. Number of tests of a concrete mixture used to estimate the standard deviation of a concrete production facility. Test of another mix within 1,000 psi (6.88 MPa) of the specified strength may be used.
3. If less than 15 prior tests are available, the overdesign should be 1,000 psi (6.88 MPa) for specified strength less than 3,000 psi (20.65 MPa), 1,200 psi (8.26 MPa) for specified strengths from 3,000 to 5,000 psi (20.65 to 34.42 MPa) and 1,400 psi (9.64 MPa) for specified strengths greater than 5,000 psi (34.42 MPa).

Table 7: Expected Usage of Concrete Classes	
Class	General Usage
A	Inlets, manholes, curb, gutter, curb & gutter, concrete retards, sidewalks, driveways, backup walls and anchors
B	Riprap, small roadside signs and anchors
C ⁵	Drilled shafts, bridge substructure, bridge railing, culverts except top slab of direct traffic culverts, headwalls, wing walls, approach slabs, and cast-in-place concrete traffic barrier
D	Riprap
H ⁵	Prestressed concrete beams, boxes, piling and precast concrete traffic barrier
J	Utility trench repair
S ⁵	Bridge slabs and top slabs of direct traffic culverts

Table 8: Air Entrainment ¹		
Nominal Maximum Aggregate Size In (mm)	% Air Entrainment	
	Moderate Exposure	Severe Exposure
3/8 (9.5)- Grades 7 & 8	6	7½
½ (12.5)- Grades 6	5½	7
¾ (19)- Grades 5	5	6

1 (25)- Grades 4	4½	6
1½ (37.5)- Grades 2 & 3	4½	5½
2 (50)- Grades 2	4	5

1. For specified concrete strengths above 5,000 psi (34.42 MPa) a reduction of 1 percentage point is allowed.

403S.8 - Mix Design Options

For the structural concretes identified in Table 5 (Classes C, H and S) and any other class of concrete designed using more than 520 lbs. of cementitious material per cubic yard (310 kgs per cubic meter), one of the mix design options presented below shall be used.

For the non-structural concretes identified in Table 5 (Classes A, B, D and I) and any other class of concrete designed using less than 520 lbs. of cementitious material per cubic yard (310 kgs per cubic meter), one of the mix design options presented below will be used, except that Class C fly ash may be used instead of Class F fly ash for Options 1, 3 and 4 unless a sulfate-resistant concrete is required.

- Option 1: Twenty (20) to thirty-five (35) percent of the cement may be replaced with Class F fly ash.
- Option 2: Thirty-five (35) to fifty (50) percent of the cement may be replaced with ground granulated blast-furnace slag.
- Option 3: Thirty-five (35) to fifty (50) percent of the cement may be replaced with a combination of Class F fly ash, ground granulated blast-furnace slag or silica fume. The combination may not include more than thirty-five (35) percent fly ash and no more than ten (10) percent silica fume.
- Option 4: Type IP or Type IS will be used and up to ten (10) percent of the cement may be replaced with Class F fly ash, ground granulated blast-furnace slag or silica fume.
- Option 5: Thirty-five (35) to fifty (50) percent of the cement may be replaced with a combination of Class C fly ash and at least six (6) percent of silica fume, ultra fine fly ash or metakaolin. The combination may not include more than thirty-five (35) percent fly ash and no more than ten (10) percent silica fume.
- Option 6: A lithium nitrate admixture will be added at a minimum dosage of 0.55 gal. of thirty (30) percent lithium nitrate solution per pound of alkalis present in the hydraulic cement.
- Option 7: When hydraulic cement only is used in the design, the total alkali contribution from the cement in the concrete does not exceed 4.0 lbs. per cubic yard, when calculated as follows:

$$\text{alkali (lbs. per CY)} = .01 (\text{lbs cement/CY}) (\% \text{ Na}_2\text{O equivalent in cement})$$

where (% Na₂O equivalent in cement) is assumed to be the maximum cement alkali content reported on the cement mill certificate.

- Option 8: When there are deviations from Options 1 through 7, the following shall be performed:
 1. Conduct tests on both coarse and fine aggregate separately in accordance with ASTM C-1260, using 440 g of the proposed cementitious in the same proportions of hydraulic cement to supplementary cementing material to be used in the mix.

2. Prior to use of the mix, a certified test report signed and sealed by a Professional Engineer, licensed in the state of Texas shall be submitted that demonstrates that ASTM C 1260 test results for each aggregate do not exceed 0.10 percent expansion.

403S.9 - Mixing and Mixing Equipment

All equipment, tools and machinery used for hauling materials and performing any part of the work shall be maintained in such condition to insure completion of the work without excessive delays for repairs and replacement. Mixing shall be done in a mixer of approved type and size that will produce uniform distribution of material throughout the mass and shall be capable of producing concrete meeting requirements of ASTM C 94, Ready-mixed Concrete and these specifications. Mixing equipment shall be capable of producing sufficient concrete to provide required quantities. Entire contents of the drum shall be discharged before any materials are placed therein for a succeeding batch. Improperly mixed concrete shall not be placed in a structure. For all mixers an adequate water supply and an accurate method of measuring the water shall be provided.

The mixer may be batched by either volumetric or weight sensing equipment and shall be equipped with a suitable timing device that will lock the discharging mechanism and signal when specified time of mixing has elapsed.

A. Proportioning and Mixing Equipment

For all miscellaneous concrete placements, a mobile, continuous, volumetric mixer or a volumetric or weight batch mixer of the rotating paddle type may be used.

When approved by Engineer or designated representative in writing or when specified for use in other items, these mixers may be used for other types of concrete construction, including structural concrete, if the number of mixers furnished will supply the amount of concrete required for the particular operation in question.

These mixers shall be designed to receive all the concrete ingredients, including admixtures, required by the mix design in a continuous uniform rate and mix them to the required consistency before discharging.

For continuous volumetric mixers, the materials delivered during a revolution of the driving mechanism or in a selected interval, will be considered a batch and the proportion of each ingredient will be calculated in the same manner as for a batch type plant.

Mixing time shall conform to recommendations of manufacturer of mixer unless otherwise directed by Engineer or designated representative.

B. Ready-mixed Concrete

Use of ready-mixed concrete will be permitted provided the batching plant and mixer trucks meet quality requirements specified herein. When ready-mixed concrete is used, additional mortar (1 sack cement, 3 parts sand and sufficient water) shall be added to each batch to coat the mixer drum. Ready-mixed concrete, batching plant and mixer truck operation shall include the following:

1. A ticket system will be used that includes a copy for the Inspector. Ticket will have machine stamped time/date of concrete batch, a mix design designation, weight of cement, fly ash, sand and aggregates; exact nomenclature and written quantities of admixtures and water. Any item missing or incomplete on ticket may be cause for rejection of concrete.
2. Sufficient trucks will be available to support continuous placements. The Contractor will satisfy the Engineer or designated representative that adequate standby trucks are available to support monolithic concrete placement requirements.
3. A portion of mixing water required by the mix design to produce the specified slump may be withheld and added at the job site, but only with permission of the Engineer or designated

representative and under the Inspector's observation. When water is added under these conditions, the concrete batch will be thoroughly mixed before any slump or strength samples are taken. Additional cement shall not be added at the job site to otherwise unacceptable mixes.

4. A metal plate(s) shall be attached in a prominent place on each truck mixer plainly showing the various uses for which it was designed. The data shall include the drum's speed of rotation for mixing and for agitating and the capacity for complete mixing and/or agitating only. A copy of the manufacturer's design, showing dimensions of blades, shall be available for inspection at the plant at all times. Accumulations of hardened concrete shall be removed to the satisfaction of the Engineer or designated representative.
5. The loading of the transit mixers shall not exceed capacity as shown on the manufacturer's plate attached to the mixer or 63 percent of the drum volume, whichever is the lesser volume. The loading of transit mixers to the extent of causing spill-out en route to delivery will not be acceptable. Consistent spillage will be cause for disqualification of a supplier.
6. Excess concrete remaining in the drum after delivery and wash water after delivery shall not be dumped on the project site unless approval of the dump location is first secured from the Engineer or designated representative.

C. Volumetric Batching

Use of volumetric batched concrete will be permitted provided the batching and continuous mixing operations conform to ASTM C 685, "Concrete Made By Volumetric Batching and Continuous Mixing". This type concrete shall be made from materials continuously batched by volume, mixed in a continuous mixer and delivered to the site in a freshly mixed and unhardened state. Tests and criteria for batching accuracy and mixing efficiency shall be as specified in ASTM C 685.

1. A ticket system will be used that includes a copy for the Inspector. The ticket will have machine stamped time/date of concrete batch, a mix design designation, weight of cement, fly ash, sand and aggregates; exact nomenclature and written quantities of admixtures and water. Any item missing or incomplete on ticket may be cause for rejection of concrete.
2. Each batching or mixing unit, or both, shall carry in a prominent place a metal plate or plates on which are plainly marked the gross volume of the unit in terms of mixed concrete, discharge speed and the weight-calibrated constant of the machine in terms of a revolution counter or other output indicator. The mixer shall produce a thoroughly mixed and uniform concrete.
3. The batcher-mixer unit shall contain in separate compartments all the necessary ingredients needed for the manufacture of concrete. The unit shall be equipped with calibrated proportioning devices to vary the mix proportions and it shall produce concrete as required by the Work and ASTM C 685.

D. Truck-mixed Concrete

The concrete shall be mixed in a truck mixer from 70 to 100 revolutions at the mixing speed designated by the manufacturer that will produce a uniform concrete mix. The concrete shall be delivered to the project in a thoroughly mixed and uniform mass and shall be discharged with a satisfactory degree of uniformity. Additional mixing at the job site, at the mixing speed designated by the manufacturer, may be allowed by the Engineer or designated representative as long as the concrete is discharged before the drum has revolved a total of 300 revolutions after the introduction of the mixing water to the cement and the aggregates.

Re-tempering or adding concrete chemical admixtures is only permitted at the job site when concrete is delivered in a truck mixer. Water shall not be added after introduction of mixing water at the batch plant except on arrival at the job site with approval of the Engineer or designated representative, in order to adjust the slump of the concrete. When this water is added, the mix design water-cementitious-material ratio shall not be exceeded. The drum or blades shall be turned at least 30 additional revolutions at mixing speed to ensure thorough and uniform mixing of the concrete. Water or chemical admixtures shall not be added to the batch after any concrete has been discharged.

When the concrete contains silica fume, mixing times and batching operations shall be adjusted as necessary to ensure that the material is completely and uniformly dispersed in the mix. The dispersion of the silica fume within the mix shall be verified in trial batches.

E. Hand-mixed Concrete

Hand mixing of concrete may be permitted for small placements or in case of an emergency and then only on authorization of the Engineer or designated representative. Hand-mixed batches shall not exceed a 4 cubic foot (0.113 cubic meters) batch in volume. Material volume ratios shall not be leaner than 1 part cement, 2 parts large aggregate, 1 part fine aggregate and enough water to produce a consistent mix with a slump not to exceed 4 inches (100 mm). Admixtures shall not be used unless specifically approved by the Engineer or designated representative.

403S.10 - Measurement

Where measurement of concrete for a structure is not provided by another governing pay item, measurement shall be made under this specification in accordance with the following.

The quantities of concrete of the various classifications which constitute the completed and accepted structure or structures in place will be measured by the cubic yard (cubic meters: 1 cubic meter is equal to 1.308 cubic yards), each, square yard (square meter: 1 square yard equals 0.836 square meters) or linear foot as indicated in the Contract Documents. Measurement will be as follows:

A. General

1. Measurement based on dimensions shall be for the completed structure as measured in place. However, field-measured dimensions shall not exceed those indicated on the drawings or as may have been directed by the Engineer or designated representative in writing.
2. No deductions shall be made for chamfers less than 2 inches (50 mm) in depth, embedded portions of structural steel, reinforcing steel, nuts, bolts, conduits less than 5 inches (125 mm) in diameter, pre/post tensioning tendons, keys, water stops, weep holes and expansion joints 2 inches (50 mm) or less in width.
3. No measurement shall be made for concrete keys between adjoining beams or prestressed concrete planks.
4. No measurement shall be made for fill concrete between the ends or adjoining prestressed concrete planks/box beams at bent caps or between the ends of prestressed concrete planks/box beams and abutment end walls.
5. No measurement shall be made for inlet and junction box invert concrete.
6. No measurement shall be made for any additional concrete required above the normal slab thickness for camber or crown.

B. Plan Quantity. For those items measured for plan quantity payment, adequate calculations have been made. If no adjustment is required by Article 403S.11, additional measurements or calculations will not be required or made.

C. Measured in Place. For those items not measured for Plan Quantity payment, measurement will be made in place, subject to the requirements of Article 403S.10.A.1 above.

403S.11 - Payment

The work performed and materials furnished as prescribed by this item and measured in accordance with the applicable provisions of "Measurement" above will be paid for as follows.

The quantity to be paid for will be that quantity indicated in the contract documents and/or shown on the drawings, regardless of errors in calculations, except as may be modified by the following.

Plan Quantities will be adjusted:

- A. When a complete structure element has been erroneously included or omitted from the drawings, the quantity shown on the drawings for that element will be added to or deducted from the plan quantity and included for payment. A complete structure element will be the smallest portion of a total structure for which a quantity is included on the drawings. Quantities revised in this manner will not be subject to the provisions of the "General Conditions", Article 11.
- B. When the plan quantity for a complete structure element is in error by 5 percent or more, a recalculation will be made and the corrected quantity included for payment. Quantities revised in this manner will not be subject to the provisions of the "General Conditions", Article 11.
- C. When quantities are revised by a change in design, the "plan quantity" will be increased or decreased by the amount involved in the design change. Quantities revised in this manner will be subject to the provisions of the "General Conditions", Article 11.

The party to the contract requesting the adjustment shall present to the other, a copy of the description and location, together with calculations of the quantity for the structure element involved. When this quantity is certified correct by the Engineer or designated representative, it will become the revised plan quantity.

Payment for increased or decreased costs due to a change in design on those items measured as "Cubic Yard", "Each", "Square Foot", "Square Yard" or "Linear Foot" will be determined by Change Order. Quantities revised in this manner will be subject to the provisions of the "General Conditions", Article 11.

The unit prices bid for the various classes of concrete shown shall include full compensation for furnishing, hauling, and mixing all concrete material; placing, finishing and curing all concrete; all grouting, pointing and finishing; furnishing and placing drains; furnishing and placing metal flashing strips; furnishing and placing expansion joint material required by this item; and for all forms and false work, labor, tools, equipment and incidentals necessary to complete the work.

Pay Item No. 403S-CY:	(Structure or Structural Component)	Per Cubic Yard.
Pay Item No. 403S-EA:	(Structure or Structural Component)	Per Each.
Pay Item No. 403S-SY:	(Structure or Structural Component)	Per Square Yard.
Pay Item No. 403S-LF:	(Structure or Structural Component)	Per Lineal Foot.

End

<u>SPECIFIC CROSS REFERENCE MATERIALS</u>
<u>Standard Specification Item 403S, "Concrete For Structures"</u>
<u>Texas Department of Transportation: Departmental Material Specifications</u>

<u>Designation</u>	<u>Description</u>
DMS-4640	Chemical Admixtures for Concrete
<u>American Association of State Highway & Transportation Officials, AASHTO Standard Method of Test for</u>	
<u>Designation</u>	<u>Description</u>
Method T 26	Quality of Water to be Used in Concrete
<u>American Concrete Institute, ACI</u>	
<u>Designation</u>	<u>Description</u>
ACI 211.1	Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete
<u>American Society for Testing and Materials, ASTM</u>	
<u>Designation</u>	<u>Description</u>
ASTM C 94	Specification For Ready-Mixed Concrete
ASTM C 150	Specification For Portland Cement
ASTM C 685	Concrete Made By Volumetric Batching and Continuous Mixing
ASTM C-1260	Standard Test Method for Potential Alkali Reactivity of Aggregates
ASTM D-512	Test Methods for Chloride Ion in Water
ASTM D-516	Test Methods for Sulfate Ion in Water
ASTM D-4191	Test Method for Sodium in Water by Atomic Absorption
ASTM D-4192	Test Method for Potassium Water by Atomic Absorption

<u>Texas Department of Transportation: Manual of Testing Procedures</u>	
<u>Designation</u>	<u>Description</u>
TEX-203-F	Sand Equivalent Test
TEX-401-A	Sieve Analysis of Fine and Coarse Aggregate
TEX-406-A	Mineral Finer than 75 µm (No. 200) Sieve in Mineral Aggregates (Decantation Test for Concrete Aggregates)
TEX-408-A	Organic Impurities in Fine Aggregate for Concrete
TEX-410-A	Abrasion of Coarse Aggregate Using The Los Angeles Machine
TEX-411-A	Soundness of Aggregate by Use of Sodium Sulfate or Magnesium Sulfate
TEX-413-A	Determination of Deleterious Materials in Mineral Aggregate
TEX-415-A	Slump of Portland Cement Concrete
TEX-416-A	Air Content of Freshly-Mixed Concrete by the Pressure Method
TEX-418-A	Compressive Strength of Cylindrical Concrete Specimens
TEX-612-J	Acid Insoluble Residue
<u>Texas Department of Transportation: Publications</u>	
<u>Designation</u>	<u>Description</u>
Bulletin C-11	Construction Bulletin
<u>Texas Department of Transportation: Departmental Material Specifications</u>	

<u>Designation</u>	<u>Description</u>
DMS-4610	Fly Ash
DMS-4620	Ground Granulated Blast-Furnace Slag
DMS-4630	Silica Fume
DMS-4635	Metakaolin

<u>RELATED CROSS REFERENCE MATERIALS</u>	
<u>Standard Specification Item 403S, "Concrete For Structures"</u>	
<u>Texas Department of Transportation: Standard Specifications for Construction and Maintenance of Highways, Streets, and Bridges</u>	
<u>Designation</u>	<u>Description</u>
Item 360	Concrete Pavement
Item 420	Concrete Structures
Item 421	Hydraulic Cement Concrete
Item 427	Surface Finishes for Concrete
Item 431	Pneumatically Placed Concrete
Item 520	Weighing and Measuring Equipment
<u>Texas Department of Transportation: Departmental Material Specifications</u>	
<u>Designation</u>	<u>Description</u>
DMS-4650	Hydraulic Cement Concrete Curing Materials and Evaporation Retardants
DMS-6100	Epoxy and Adhesives

DMS 8900	Fly Ash
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ITEM NO. 406S - REINFORCING STEEL 9-26-12

406S.1 - Description

This item shall govern furnishing and placement of reinforcing steel, deformed and smooth, of the size and quantity indicated on the drawings and in accordance with these specifications.

This specification is applicable for projects or work involving either inch-pound or SI units. Within the text and accompanying tables, the inch-pound units are given preference followed by SI units shown within parentheses.

406S.2 - Submittals

The submittal requirements of this specification item may include:

- A. Evidence that the steel reinforcement producer is included on the TxDOT list of approved producing mills
- B. Listing of the size, grade, type and quantity of reinforcing steel proposed for the project.
- C. If welding of reinforcing steel is proposed, evidence that carbon equivalent (C.E.) of the proposed steel is at least 0.55% with a report of chemical analysis showing the percentages of elements necessary to establish C.E.
- D. If epoxy coated steel is proposed, evidence that the steel reinforcement producer is included on the TxDOT list of approved epoxy coating applicators
- E. If epoxy coated steel is proposed, written certification that the epoxy-coated reinforcing steel meets the requirements of this Item with a copy of the manufacturer's control tests.
- F. When mechanical splices are proposed, the types of couplers proposed for use.

406S.3 - Materials

A. Approved Mills

Prior to furnishing reinforcing steel, the producing mills must be included on the list of approved producing mills that is maintained by the Construction Division of the State of Texas Department of Transportation

B. Deformed Bars and Wire Reinforcement

Unless indicated otherwise on the drawings, Bar reinforcement shall be Grade 60 and deformed. Reinforcing steel must conform to one of the following:

ASTM A615/615M, Grades 40 or 60 (300 or 420)

ASTM A996/996M, Type A, Grades 40 or 60 (300 or 420)

ASTM A996/996M, Type R, Grade 60 (420), permitted in concrete pavement only (furnished as straight bars only without bends. Bend tests are not required)

ASTM A706/706M

In cases where the provisions of this item are in conflict with the provisions of the ASTM Designation to which reference is made, the provisions of this item shall govern.

The nominal size, area and weight (mass) of reinforcing steel bars covered by these specifications are as follows:

Bar Size Number 1/8 ins (mm)	Nominal Diameter, inches (mm)	Nominal Area, Sq. ins. (mm ²)	Weight/Linear Foot Lbs. (kg)
2 (6)	0.250 (6.6)	0.05 (32)	0.167 (.075)
3 (10)	0.375 (9.5)	0.11 (71)	0.376 (.171)
4 (13)	0.500 (12.5)	0.20 (127)	0.668 (.303)
5 (16)	0.625 (15.5)	0.31 (198)	1.043 (.473)
6 (19)	0.750 (19.0)	0.44 (285)	1.502 (.681)
7 (22)	0.875 (22.0)	0.60 (388)	2.044 (.927)
8 (25)	1.000 (25.5)	0.79 (507)	2.670 (2.211)
9 (29)	1.128 (28.5)	1.00 (641)	3.400 (1.542)
10 (32)	1.270 (32.0)	1.27 (792)	4.303 (1.952)
11 (36)	1.410 (36.0)	1.56 (958)	5.313 (2.410)
14 (43)	1.693 (43.0)	2.25 (1552)	7.65 (3.470)
18 (57)	2.257 (57.5)	4.00 (2565)	13.60 (6.169)

Smooth, round bars shall be designated by size number through a No. 4. Smooth bars above No. 4 shall be designated by diameter in inches.

C. Smooth Bar and Spiral Reinforcement

Smooth bars and dowels for concrete pavement must have a minimum yield strength of 60 ksi (414 MPa) and meet ASTM A615/615M. Smooth bars that are greater in diameter than a No. 3 (10 mm) designation shall conform to ASTM A615 or meet the physical requirements of ASTM A36.

Spiral reinforcement shall be either smooth or deformed bars or wire of the minimum size or gauge indicated on the drawings. Bars for spiral reinforcement shall comply with ASTM A615 Grade 40(300), ASTM A996, Type A, Grade 40 (300); or ASTM A675, Grade 80(550), meeting dimensional requirements of ASTM A615. Smooth wire shall comply with ASTM A82, and deformed wire shall comply with ASTM A496.

D. Weldable Reinforcing Steel

Reinforcing steel to be welded must comply with ASTM A706 or have a carbon equivalent (C.E.) of at most 0.55%. A report of chemical analysis showing the percentages of elements necessary to establish C.E. is required for reinforcing steel that does not meet ASTM A706 to be structurally welded. No tack welding will be allowed. All welding shall conform to the requirements of AWS D1.1/D1.1M.

Carbon Equivalent (C.E.) shall be calculated as follows:

$$\text{C.E.} = \%C + 1.67*(\% \text{ Mn}) + .025*(\% \text{ Cu}) + .05*(\% \text{ Ni}) + .01*(\% \text{ Cr}) - .02*(\% \text{ Mo}) - .1*(\% \text{ V})$$

Where C is carbon,

Mn is manganese

Cu is copper

Ni is nickel

Cr is chromium

Mo is molybdenum, and

V is vanadium.

The requirements above do not apply to the following miscellaneous welding applications:

Splicing reinforcing steel to extend bars in the bottom of a drilled shaft;

Attaching chairs to the reinforcing steel cage of a drilled shaft;

Armor joints and their supports;

Screed rail and form hanger supports where permitted on steel units;

Reinforcing steel to R-bars for lateral stability between prestressed beams, spirals, or bands of reinforcing bars in drilled shaft cages;

Permanent bridge deck forms;

Steel added in railing when slip-form construction is used; and

Other similar miscellaneous members that have no load carrying capacity in the completed structure.

E. Welded Wire Fabric

Wire shall conform to the requirements of the Standard Specifications for Cold-Drawn Steel Wire for Concrete Reinforcement, ASTM A 82 or A 496. Wire fabric, when used as reinforcement, shall conform to ASTM A 185 or A 497.

When wire is ordered by size numbers, the following relation between size number, diameter in inches and area shall apply unless otherwise indicated on the drawings:

Size, W Number 1/100 in ² (mm ²)	Nominal Diameter inch (mm)	Nominal Area, sq. inches (mm ²)
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31 (200)	0.628 (16.0)	0.310 (200)
30 (194)	0.618 (15.7)	0.300 (194)
28 (181)	0.597 (15.2)	0.280 (181)
26 (168)	0.575 (14.6)	0.260 (168)
24 (155)	0.553 (14.0)	0.240 (155)
22 (142)	0.529 (13.4)	0.220 (142)
20 (129)	0.505 (12.8)	0.200 (129)
18 (116)	0.479 (12.2)	0.180 (116)
16 (103)	0.451 (11.5)	0.160 (103)
14 (90)	0.422 (10.7)	0.140 (90)
12 (77)	0.391 (9.9)	0.120 (77)
10 (65)	0.357 (9.1)	0.100 (65)
8 (52)	0.319 (8.1)	0.080 (52)
7 (45)	0.299 (7.6)	0.070 (45)
6 (39)	0.276 (7.0)	0.060 (39)
5.5 (35)	0.265 (6.7)	0.055 (35)
5 (32)	0.252 (6.4)	0.050 (32)
4.5 (29)	0.239 (6.1)	0.045 (29)
4 (26)	0.226 (5.7)	0.040 (26)
3.5 (23)	0.211 (5.4)	0.035 (23)
3 (19)	0.195 (5.0)	0.030 (19)

2.5 (16)	0.178 (4.5)	0.025 (16)
2 (13)	0.160 (4.1)	0.020 (13)
1.5 (9)	0.138 (3.5)	0.015 (9.7)
1.2 (8)	0.124 (3.1)	0.012 (7.7)
1 (6)	0.113 (2.9)	0.010 (6.5)
0.5 (3)	0.080 (2.0)	0.005 (3.2)

Where deformed wire is required, the size number shall be preceded by D and for smooth wire the prefix W shall be shown.

Welded wire fabric shall be designated as follows: 6 x 12 - W16 x W8, which indicates a 6 in. (150 mm) longitudinal wire spacing and 12-in (300 mm) transverse wire spacing with smooth No. 16 (103) wire longitudinally and smooth no. 8 (52) wire transversely.

F. Epoxy Coating

Epoxy coating shall be required as indicated on the drawings. Prior to furnishing epoxy-coated reinforcing steel, the epoxy applicator must be included on the list of approved applicators that is maintained by the Construction Division of the State of Texas Department of Transportation.

The reinforcing steel shall be epoxy coated in accordance with the following.

Epoxy Coating Requirements for Reinforcing Steel

Material	Specification
Bar	ASTM A775 or A934
Wire or Fabric	ASTM A884 Class A or B
Mechanical Coupler	As indicated on the drawings
Hardware	As indicated on the drawings

The epoxy coating material and coating repair material shall comply with TxDOT's DMS-8130, "Epoxy Powder Coating for Reinforcing Steel". The applicator shall not patch more than ¼ inch total length in any foot (20 mm total length in any meter) at the applicator's plant.

The epoxy-coated reinforcing steel shall be sampled and tested in accordance with TxDOT Test Method Tex-739-I, "Sampling and Testing Epoxy Coated Reinforcing Steel".

The identification of all reinforcing steel shall be maintained throughout the epoxy coating and fabrication and until delivery to the project site.

Written certification that the epoxy-coated reinforcing steel meets the requirements of this Item shall be provided along with a copy of the manufacturer's control tests.

G. Mechanical Couplers

When mechanical splices in reinforcing steel bars are indicated on the drawings, the following types of couplers may be used:

Sleeve-filler

Sleeve-threaded

Sleeve-swaged, or

Sleeve-wedge.

H. Chairs and Supports

Chairs and Supports shall be steel, precast mortar or concrete blocks cast in molds meeting the approval of the Engineer or designated representative of sufficient strength to position the reinforcement as indicated on the drawings when supporting the dead load of the reinforcement, the weight of the workers placing concrete and the weight of the concrete bearing on the steel. Chairs shall be plastic coated when indicated on the drawings.

Chair Types and Applicable Uses	
Structural or Architectural Elements (columns, beams, walls, slabs) exposed to weather, not subjected to sand blasting, water blasting or grinding.	Galvanized steel or steel chairs with plastic coated feet.
Structural or Architectural Elements exposed to weather and subject to sand blasting, water blasting or grinding.	Stainless steel chairs.
Structural or Architectural Elements not exposed to weather or corrosive conditions.	Uncoated steel chairs
Slabs and grade beams cast on grade.	Steel chairs with a base with 9 inch ² (58 cm ²) minimum area or sufficient area to prevent the chair from sinking into

	fill or subgrade. Precast mortar or concrete blocks meeting the requirements of this item may be used.
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406S.4 - Bending

The reinforcement shall be bent cold, true to the shapes indicated on the drawings. Bending shall preferably be done in the shop. Irregularities in bending shall be cause for rejection. Improperly fabricated, damaged or broken bars shall be replaced at no additional expense to the City. Damaged or broken bars embedded in a previous concrete placement shall be repaired using a method approved by the Engineer or designated representative.

Unless otherwise indicated on the drawings, the inside diameter of bar bends, in terms of the nominal bar diameter (d), shall be as follows:

Bends of 90 degrees and greater in stirrups, ties and other secondary bars that enclose another bar in the bend.

Bar Number in 1/8 inches (mm)	Diameter
3, 4, 5 (10, 13, 16)	4d
6, 7, 8	6d

All bends in main bars and in secondary bars not covered above.

Bar Number in 1/8 inches (mm)	Diameter
3 thru 8 (10 thru 25)	6d
9, 10, 11 (29, 32, 36)	8d
14, 18 (43, 57)	10d

406S.5 - Tolerances

Fabricating tolerances for bars shall not be greater than shown on Standard (Detail) 406S-1.

406S.6 - Storing

Steel reinforcement shall be stored above the surface of the ground upon platforms, skids or other supports and shall be protected as far as practicable from mechanical injury and surface deterioration caused by exposure to conditions producing rust. When placed in the work, reinforcement shall be free from dirt, paint, grease, oil or other foreign materials. Reinforcement shall be free from injurious defects such as cracks and laminations. Rust, surface seams, surface irregularities or mill scale will not be cause for rejection, provided the minimum dimensions, cross sectional area and tensile properties of a hand wire brushed specimen meets the physical requirements for the size and grade of steel indicated on the drawings.

406S.7 - Splices

Splicing of bars, except when indicated on the drawings or specified herein, will not be permitted without written approval of the Engineer or designated representative. No substitution of bars will be allowed without the approval of the Engineer or designated representative. Any splicing of substituted bars shall conform to the requirements in the Table below.

Splices not indicated on the drawings will be permitted in slabs not more than 15 inches (380 mm) in thickness, columns, walls and parapets.

Splices will not be permitted in bars 30 feet (9.1 meters) or less in plan length unless otherwise approved. For bars exceeding 30 feet (9.1 meters) in plan length, the distance center to center of splices shall not be less than 30 feet (9.1 meters) minus 1 splice length, with no more than 1 individual bar length less than 10 feet (3 meters). Splices not indicated on the drawings, but permitted hereby, shall conform to the Table below. The specified concrete cover shall be maintained at such splices and the bars placed in contact and securely tied together.

Minimum Lap Requirements		
Bar Number in 1/8 inches (mm)	Uncoated Lap Length	Coated Lap Length
3 (10)	1 foot 4 inches (0.4 meters)	2 foot 0 inches (0.610 meters)
4 (13)	1 foot 9 inches (0.533 meters)	2 foot 8 inches (0.813 meters)
5 (16)	2 foot 2 inches (0.660 meters)	3 feet 3 inches (0.991 meters)
6 (19)	2 foot 7 inches (0.787 meters)	3 feet 11 inches (1.194 meters)
7 (22)	3 feet 5 inches (1.041 meters)	5 feet 2 inches (1.575 meters)
No. 8 (25)	4 feet 6 inches (1.372 meters)	6 feet 9 inches (2.057 meters)
No. 9 (29)	5 feet 8 inches (1.727 meters)	8 feet 6 inches (2.591 meters)
No. 10 (32)	7 feet 3 inches (2.210 meters)	10 feet 11 inches (3.327 meters)

No. 11 (36)	8 feet 11 inches (2.718 meters)	13 feet 5 inches (4.089 meters)
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Spiral steel shall be lapped a minimum of 1 turn. Bar No. 14 and No. 18 may not be lapped.

Welded wire fabric shall be spliced using a lap length that includes an overlap of at least 2 cross wires plus 2 inches (50 mm) on each sheet or roll.

Splices using bars that develop equivalent strength and are lapped in accordance with the table above are permitted.

Welding of reinforcing bars may be used only where indicated on the drawings or as permitted herein. All welding operations, processes, equipment, materials, quality of work and inspection shall conform to the requirements indicated on the drawings. All splices shall be of such dimension and character as to develop the full strength of the bar being spliced.

End preparation for butt-welding reinforcing bars shall be done in the field, except Bar No. 6 and larger shall be done in the shop. Delivered bars shall be of sufficient length to permit this practice.

For box culvert extensions with less than 1 foot (0.3 meters) of fill, the existing longitudinal bars shall have a lap with the new bars as shown in the table above. For box culvert extensions with more than 1 foot (0.3 meters) of fill, a minimum lap of 12 inches (300 mm) will be required.

Unless otherwise indicated on the drawings, dowel bars transferring tensile stresses shall have a minimum embedment equal to the minimum lap requirements shown in the table above. Shear transfer dowels shall have a minimum embedment of 12 inches (300 mm).

406S.8 - Placement

Reinforcement shall be placed as near as possible in the position indicated on the drawings. Unless otherwise indicated on the drawings, dimensions shown for reinforcement are to the centers of the bars. In the plane of the steel parallel to the nearest surface of concrete, bars shall not vary from plan placement by more than 1/12 of the spacing between bars. In the plane of the steel perpendicular to the nearest surface of concrete, bars shall not vary from plan placement by more than ¼ inch (6 mm). Cover of concrete to the nearest surface of steel shall be as follows:

	Minimum Cover, Inches (mm)
(a) Concrete cast against and permanently exposed to earth	3 (76 mm)
(b) Concrete exposed to earth or weather:	
Bar No. 6 (19) through No. 18 bars (57)	2 (51 mm)
Bar No. 5 (16), W31 (W200) or D31 (D200) wire and smaller	1½ (38 mm)
(c) Concrete not exposed to weather or in contact with ground:	

Slabs, walls, joists:	
Bar No. 14 (43) and 18 (57)	1½ (38mm)
Bar No. 11 (36) and smaller	1 (25 mm)
Beams, columns:	
Primary reinforcement, ties, stirrups, spirals	1 ½ (38 mm)
Shells, folded plate members:	
Bar No. 6 (19) and larger	1 (25 mm)
Bar No. 5 (16), W31 (W200) or D31 (D200) wire, and smaller	1 (25 mm)

Vertical stirrups shall always pass around the main tension members and be attached securely thereto.

The reinforcing steel shall be located accurately in the forms and held firmly in place before and during concrete placement by means of bar supports that are adequate in strength and number to prevent displacement and to keep the steel at the required distance from the form surface. Bars shall be supported by means of approved galvanized metal spacers, metal spacers with plastic coated tips, stainless steel spacers, plastic spacers or approved precast mortar or concrete blocks when supports are in contact with removable or stay-in-place forms. Bright basic bar supports shall be used to support reinforcing steel placed in slab overlays on concrete panels or on existing concrete slabs. Bar supports in contact with soil or subgrade shall be approved.

For bar supports with plastic tips, the plastic protection must be at least 3/32 in. (2.4 mm) thick and extend upward on the wire to a point at least ½ in. (12.5 mm) above the formwork.

For approval of plastic spacers on a project, representative samples of the plastic shall show no visible indications of deterioration after immersion in a 5 percent solution of sodium hydroxide for 120 hours.

All accessories such as tie wires, bar chairs, supports, or clips used with epoxy-coated reinforcement shall be of steel, fully coated with epoxy or plastic. When approved by the Engineer or designated representative, plastic supports may also be used with epoxy-coated reinforcement.

All reinforcing steel shall be tied at all intersections, except that where spacing is less than 1 foot (300 mm) in each direction, alternate intersections only need be tied. For reinforcing steel cages for other structural members, the steel shall be tied at enough intersections to provide a rigid cage of steel. Mats of wire fabric shall overlap each other 1 full space as a minimum to maintain a uniform strength and shall be tied at the ends and edges.

Where prefabricated deformed wire mats are specified or if the Contractor requests, welded wire fabric may be substituted for a comparable area of steel reinforcing bar plan, subject to the approval of the Engineer or designated representative.

Mortar or concrete blocks shall be cast to uniform dimensions with adequate bearing area. A suitable tie wire shall be provided in each block, to be used for anchoring to the steel. Except in unusual cases and when specifically authorized by the Engineer, the size of the surface to be placed adjacent to the forms shall not exceed 2½ inches (63.5 mm) square or the equivalent thereof in cases where circular or rectangular areas are provided. Blocks shall be cast accurately to the thickness required and the surface to be placed adjacent to the forms shall be a true plane, free of surface imperfections. The blocks shall be cured by covering them with wet burlap or mats for a period of 72 hours. Mortar for blocks should contain approximately 1 part hydraulic cement to three parts sand. Concrete for blocks should contain 850 pounds of hydraulic cement per cubic yard (500 kilograms per cubic meter) of concrete.

Individual bar supports shall be placed in rows at 4-ft (1.22 meters) maximum spacing in each direction. Continuous type bar supports shall be placed at 4-ft (1.22 meters) maximum spacing. Continuous bar supports shall be used with permanent metal deck forms.

The exposure of the ends of longitudinals, stirrups and spacers used to position the reinforcement in concrete pipe and in precast box culverts or storm drains is not a cause for rejection.

Reinforcing steel for bridge slabs, top slabs of direct traffic culverts, and top slabs of prestressed box beams at all intersections, except tie only alternate intersections where spacing is less than 1 ft. (300 mm) in each direction.

For steel reinforcing cages for other structural members, reinforcement shall be supported and tied in such a manner that a sufficiently rigid cage of steel is provided. Fasten mats of wire fabric securely at the ends and edges. If the cage is not adequately supported to resist settlement or floating upward of the steel, overturning of truss bars or movement in any direction during concrete placement, permission to continue concrete placement will be withheld until corrective measures are taken. Sufficient measurements shall be made during concrete placement to insure compliance with the above.

No concrete shall be deposited until the Engineer or designated representative has reviewed the placement of the reinforcing steel and all mortar, mud, dirt, etc., shall be cleaned from the reinforcement, forms, workers' boots and tools. Do not place concrete until authorized by the Engineer or designated representative.

406S.9 - Handling, Placement and Repair of Epoxy-coated Reinforcement Steel

A. Handling

Systems for handling coated-reinforcement with padded contact areas shall be provided. Handling bands shall be padded to prevent damage to the coating. Bundles of coated reinforcement shall be lifted with a strongback, spreader bar, multiple supports or a platform bridge. The bundled reinforcement shall be carefully transported and stored on protective cribbing. The coated reinforcement should not be dropped or drug during handling.

B. Construction Methods

Coated reinforcement shall not be flame-cut but shall be sawn or shear-cut only when approved. Cut ends shall be coated as specified in Section C, "Repair of Coating".

Coated reinforcement steel shall not be welded or mechanically coupled except where specifically indicated on the drawings. When welding or coupling is indicated on the drawing, the epoxy coating shall be removed at least 6 in. (150 mm) beyond the weld limits before welding and 2 in. (50 mm) beyond the limits of the mechanical coupler before assembly. After the welding or coupling operation is completed the steel shall be cleaned of oil, grease, moisture, dirt, welding contamination (slag or acid residue) and rust to a near-white finish. The existing epoxy coating shall be examined for damage and any damaged or loose epoxy shall be removed to expose sound epoxy coating.

After cleaning the coated-steel, the splice area shall be coated with epoxy repair material to a thickness of 7 to 17 mils (0.18 to 0.43 mm) after curing. A second application of the repair material shall be applied to the bar and coupler interface to ensure complete sealing of the joint.

C. Repair of Coating

The material used for coating repair shall comply with the requirements of this Item and ASTM D3963/D3963M, "Specification for Fabrication and Jobsite Handling of Epoxy-coated Reinforcing Steel Bars". Repairs shall be made in accordance with procedures recommended by the manufacturer of the epoxy coating powder. For areas to be patched, a minimum coating thickness as required for the original coating shall be applied. All visible damage to the coating shall be repaired.

Sawed and sheared ends, cuts, breaks and other damage shall be promptly repaired before additional oxidation occurs. The areas to be repaired shall be cleaned to ensure that they free from surface contaminants. Repairs shall be made in the shop or in the field as required.

406S.10 - Measurement

The measurement of quantities of reinforcement furnished and placed will be based on the calculated weight of the steel actually placed as indicated on the drawings, with no allowance made for added bar lengths for splices requested by the Contractor nor for extra steel used when bars larger than those indicated on the drawings are used or for a higher grade of steel that is substituted with the permission of the Engineer or designated representative. Tie wires and supporting devices will not be included in the calculated weights. The calculated weight of bar reinforcement will be determined using the theoretical bar weight set forth in this item.

Measurement required by a change in design will be computed as described above for the actual steel required to complete the work.

406S.11 - Payment

This item shall be paid for at the contract unit price bid per pound of "Reinforcing Steel". The unit bid price shall include full compensation for all work specified herein including furnishing, bending, fabricating, welding and placing reinforcement, for all clips, blocks, metal spacers, ties, chairs, wire or other materials used for fastening reinforcement in place and for all tools, labor, equipment and incidentals necessary to complete the work.

Reinforcing steel will generally not be paid for directly, but shall be included in the unit price bid for the items of construction in which the reinforcing steel is used.

When specified in the contract bid form as a separate pay item, this item shall be paid for at the contract unit price bid per pound of "Reinforcing Steel". The unit bid price shall include full compensation for all work specified herein including furnishing, bending, fabricating, welding and placing reinforcement, for all clips, blocks, metal spacers, ties, chairs, wire or other materials used for fastening reinforcement in place and for all tools, labor, equipment and incidentals necessary to complete the work.

Payment, when included as a contract pay item, will be made under:

Pay Item No. 406S-RC:	Reinforcing Steel	Per Pound.
Pay Item No. 406S-ERC:	Epoxy-Coated Reinforcing Steel	Per Pound.

End

<u>SPECIFIC CROSS REFERENCE MATERIALS</u>	
<u>Standard Specification Item 406S, "Reinforcing Steel"</u>	
<u>American Society for Testing and Materials, ASTM</u>	
<u>Designation</u>	<u>Description</u>
ASTM A 36/A 36M	Carbon Structural Steel
ASTM A 82	Steel Wire, Plain, for Concrete Reinforcement
ASTM A 185	Steel Welded Wire Fabric, Plain, for Concrete Reinforcement
ASTM A 496	Steel Wire, Deformed, for Concrete Reinforcement
ASTM A 497	Steel Welded Wire Fabric, Deformed, for Concrete Reinforcement
ASTM A 615/A 615M	Deformed and Plain Billet-steel Bars for Concrete Reinforcement
ASTM A 675/A 675M	Steel Bars, Carbon, Hot-Wrought, Special Quality, Mechanical Properties
ASTM A 706/A 706M	Low- Alloy Steel Deformed and Plain Bars for Concrete Reinforcement
ASTM A 775/A 775M	Epoxy-Coated Reinforcing Steel Bars
ASTM A 884/A 884M	Epoxy-Coated Steel Wire and Welded Wire Fabric For Reinforcement
ASTM A 934/A 934M	Epoxy-Coated Prefabricated Reinforcing Steel Bars
ASTM A 996/A 996M	Rail-Steel and Axle-Steel Deformed Bars for Concrete Reinforcement
ASTM D3963/D3963M	Fabrication and Jobsite Handling of Epoxy-coated Reinforcing Steel Bars
<u>Texas Department of Transportation: Manual of Testing Procedures</u>	
<u>Designation</u>	<u>Description</u>

Tex-739-I	Sampling and Testing Epoxy Coated Reinforcing Steel
<u>City of Austin Standard (Details)</u>	
<u>Designation</u>	<u>Description</u>
Standard 406S-1	Reinforced Steel Tolerances
<u>Texas Department of Transportation: Departmental Material Specifications</u>	
<u>Designation</u>	<u>Description</u>
DMS 8130	Epoxy Powder Coating for Reinforcing Steel
<u>American Welding Society</u>	
<u>Designation</u>	<u>Description</u>
AWS D1.1/D1.1M	Structural Welding Code

<u>RELATED CROSS REFERENCE MATERIALS</u>	
<u>Standard Specification Item 406S, "Reinforcing Steel"</u>	
<u>City of Austin Standard Specification Items</u>	
<u>Designation</u>	<u>Description</u>
Item No. 360	Concrete Pavement
Item No. 403S	Concrete for Structures

Item No. 410S	Concrete Structures
Item No. 414S	Concrete Retaining Walls
Item No. 420S	Drilled Shaft Foundations
Item No. 830S	Traffic Signal Controller Foundation
Item No. 831S	Traffic Signal Drilled Shaft Foundation
Texas Department of Transportation: Standard Specifications for Construction and Maintenance of Highways, Streets, and Bridges	
<u>Designation</u>	<u>Description</u>
Item No. 360	Concrete Pavement
Item No. 420	Concrete Structures
Item No. 421	Hydraulic Cement Concrete
Item No. 422	Reinforced Concrete Slab
Item No. 423	Retaining Walls
Item No. 440	Reinforcing Steels

ITEM NO. 408S - CONCRETE JOINT MATERIALS 11-13-07

408S.1 - Description

This item shall govern the furnishing and placing of all longitudinal, transverse contraction and expansion joint material in concrete work as herein specified in the various items of these specifications as indicated or as directed by the Engineer or designated representative.

This specification is applicable for projects or work involving either inch-pound or SI units. Within the text and accompanying tables, the inch-pound units are given preference followed by SI units shown within parentheses.

408S.2 - Submittals

The submittal requirements of this specification item include:

- A. Type and manufacturer of all joint materials proposed for use.
- B. Technical data indicating that proposed products meet the requirements specified herein.

408S.3 - Materials

(1) Preformed Asphalt Board

Preformed asphalt board formed from cane or other suitable fibers of a cellular nature securely bound together and uniformly impregnated with a suitable asphaltic binder and meeting the requirements of the Standard Specifications for Preformed Expansion Joint Filler for Concrete (Bituminous Type), ASTM D 994.

(2) Preformed Nonbituminous Fiber Material

Preformed nonbituminous fiber material shall meet the requirements of the Standard Specifications for the Preformed Expansion Joint Filler for Concrete Paving and Structural Construction, ASTM D 1751, except that the requirements pertaining to bitumen content, density and water absorption shall be voided.

(3) Boards

Boards obtained from Redwood timber, of sound heartwood, free from sapwood, knots, clustered birdseye, checks and splits. Occasional sound or hollow birdseye, when not in clusters, will be permitted provided the board is free from any other defects that will impair its usefulness as a joint filler.

(4) Joint Sealer (Concrete Pavement)

This material shall be a one part low modulus silicone especially designed to cure at ambient temperatures by reacting with moisture in the air and shall have the following properties:

As Supplied	
Color	Gray
Flow, MIL-2-8802D Sec. 4.8.4	0.2 maximum

Working Time, minutes	10Tack-Free Time at 77°F 2F (25°C 1.66°C) Min.
MIL-2-8802D Sec.4.8.7	60
Cure time, at 77°F (25°C), days	7-14
Full Adhesion, days	14-21
As Cured—after 7 days at 77°F (25°C) and 40% RH	
Elongation, percent minimum	1200
Durometer Hardness, Shore A, points ASTM 2240	15
Joint Movement Capability, percent	+100/-50
Tensile Strength, maximum elongation,psi (kPa)	100 (689)
Peel Strength, psi (kPa)	25 (172)

The joint sealer shall adhere to the sides of the concrete joint or crack and shall be an effective seal against infiltration of water and incompressibles. The material shall not crack or break when exposed to low temperature.

(5) Backer Rod

Backer Rod shall be expanded closed cell polyethylene foam compatible with sealant. No bond or reaction shall occur between rod and sealant. Backer Rod shall be of sufficient width to be in compression after placement and shall be used with joint sealer.

(6) Joint Sealing Material

Joint Sealing Material for other than pavement use may be a two-component, synthetic polymer or cold-pourable, self leveling type meeting the following requirements:

The material shall adhere to the sides of the concrete joint or crack and shall form an effective seal against infiltration of water and incompressibles. The material shall not crack or break when exposed to low temperatures. Curing is to be by polymerization and not by evaporation of solvent or fluxing of harder particles. It shall cure sufficiently at an average temperature of 77°F 3°F (25°C 1.66°C) so as not to pick up under wheels of traffic in a maximum of 3 hours.

Performance Requirements:

When tested in accordance with Test Method Tex-525-C, the joint sealing material shall meet the above curing times and the requirements as follows:

It shall be of such consistency that it can be mixed and poured or mixed and extruded into joints at temperatures above 60°F (1.66°C).

Penetration 77°F (25°C), 150 gm. Cone, 5 sec., max.-cm	0.90
Bond and Extension 75%, 0F, 5 cycles:	
Dry Concrete Blocks	Pass
Wet Concrete Blocks	Pass
Steel Blocks (Primed if specified by manufacturer)	Pass
Flow at 200 °F (93°C)	None
Water content % by weight, max.	5.0
Resilience:	
Original sample min. % (cured)	50
Oven-aged at 158°F (70°C) min. %	50
For Class 1-a material only, Cold Flow (10 minute)	None

(7) Rebonded Recycled Tire Rubber

This material consists of granular particles of rubber, made by grinding automobile and truck tires, securely bound together by a synthetic resin or plastic binder. The filler must be molded into sheets of the required dimensions, which meet the testing requirements of both ASTM D 1751 and ASTM D 1752, except that the requirements for asphalt content and expansion are waived. The density of the material must be at least 30 lb/ft³ (440kg/m³).

408S.4 - Construction Methods

The Contractor shall install "Concrete Joint Materials" which will function as a compatible system. Joint sealer shall not be placed where a bond breaker is present.

Asphalt, Redwood board or other materials used shall extend the full depth of the concrete and shall be perpendicular to the exposed face. All joints shall be shaped to conform to the contour of the finished section in which they are installed. All material shall be a minimum of ½ inch (12.5 mm) thick or as indicated. Wood materials shall be anchored to the adjacent concrete to permanently hold them in place. Joint sealer shall be installed in accordance with the manufacturer's recommendations.

The material used for side walk expansion joints shall conform to No. 3 above, unless otherwise indicated.

The material used for curb and gutter expansion joints filler shall conform to any of the above, except when placed adjacent to concrete pavement, the joint material shall match the pavement joint material.

408S.5 - Measurement and Payment

No additional compensation will be made for materials, equipment or labor required by this item, but shall be included in the unit price bid for the item of construction in which this item is used.

End

<u>SPECIFIC CROSS REFERENCE MATERIALS</u>	
<u>Standard Specification Item No. 408S, " Concrete Joint Materials"</u>	
<u>American Society for Testing and Materials (ASTM)</u>	
<u>Designation</u>	<u>Description</u>
D 994	Specification for Preformed Expansion Joint Filler for Concrete (Bituminous Type)
D 1751	Specification for Preformed Expansion Joint Filler for Concrete
	Paving and Structural Construction (Nonextruding and Resilient Bituminous Types)
D 1752	Specification for Preformed Sponge Rubber and Cork Expansion
	Joint Fillers for Concrete Paving and Structural Construction
D 2240	Standard Test Method for Rubber Property-Durameter Hardness
<u>Texas Department of Transportation: Manual of Testing Procedures</u>	
<u>Designation</u>	<u>Description</u>
Tex-525-C	Tests for Asphalt and Concrete Joint Sealers

ITEM NO. 409S - MEMBRANE CURING 11-13-07

409S.1 - Description

This item shall govern curing concrete pavement, concrete base, pavement, curbs, gutters, retards, sidewalks, driveways, medians, islands, concrete riprap, cement stabilized riprap, concrete structures and other concrete as indicated by applying an impervious liquid membrane forming material.

This specification is applicable for projects or work involving either inch-pound or SI units. Within the text and accompanying tables, the inch-pound units are given preference followed by SI units shown within parentheses.

409S.2 - Submittals

The submittal requirements of this specification item include:

A. Type and manufacturer for all membrane curing materials proposed.

B. Proposed curing procedures.

409S.3 - Material

The liquid forming membrane curing compound shall comply with the "Standard Specification for Liquid Membrane-forming Compounds for Curing Concrete", ASTM C 309, Type 1-D clear or translucent, with fugitive dye or Type 2 white pigmented. The material shall have a minimum flash point of 80°F (26.7°C) when tested by the "Pensky-Martin Closed Cup Tester", ASTM D 93.

It shall be of such consistency that it can be satisfactorily applied as a fine mist through an atomizing nozzle by means of approved pressure spraying equipment at atmospheric temperatures above 40°F (4.4°C).

It shall be of such nature that it will not produce permanent discoloration of concrete surfaces nor react deleteriously with the concrete or its components. Type 1 compound shall contain a fugitive dye that will be distinctly visible not less than 4 hours nor more than 7 days after application.

Type 2 compound shall not settle out excessively or cake in the container and shall be capable of being mixed to a uniform consistency by moderate stirring and shall exhibit a daylight reflectance of not less than 60 percent of that of magnesium oxide when tested as indicated.

The compound shall produce a firm, continuous, uniform moisture impermeable film, free from pinholes and shall adhere satisfactorily to the surfaces of damp concrete. When applied to the damp concrete surface at the rate of coverage indicated, the compound shall dry to the touch in not more than 4 hours and shall not be tacky or track off concrete after 12 hours.

It shall adhere to horizontal and vertical surfaces in a tenacious film and shall not run off or show an appreciable sag, disintegrate, check, peel or crack during the required curing period.

Under traffic, the compound shall not pick up or peel and shall gradually disintegrate from the surface.

The compound shall be delivered to the job only in the manufacturer's original containers, which shall be clearly labeled with the manufacturer's name, the trade name of the material and a batch number or symbol with which test samples may be correlated.

The water retention test shall be in accordance with the following:

Percentage loss shall be defined as the water lost after the application of the curing material was applied. The permissible percentage moisture loss (at the rate of coverage specified herein) shall not exceed the following:

24 hours after application	2 percent
72 hours after application	4 percent

409S.4 - Measurement and Payment

The membrane curing compound shall be applied after the surface finishing has been completed and immediately after the free surface moisture has disappeared. The surface shall be sealed with a single uniform coating of the specified type of curing compound applied at the rate of coverage recommended by the manufacturer and directed by the Engineer or designated representative, but not less than 1 gallon per 180 square feet (3.8 liters per 16.7 square meters) of area. The Contractor shall provide satisfactory means and facilities to properly control and check the rate of application of the compound.

The compounds shall not be applied before the surface has become dry, but shall be applied just after free moisture has disappeared.

The compound shall be thoroughly agitated during its use and shall be applied by means of approved mechanical power pressure sprayers for street and bridge applications. The sprayers used to apply the membrane to concrete exposed surfaces shall travel at a uniform speed along the forms and be mechanically driven. The equipment shall be of such design that it will insure uniform and even application of the membrane material. The sprayers shall be equipped with satisfactory atomizing nozzles. On small miscellaneous items or on interim bridge deck curing will the Contractor be permitted to use hand-powered spray equipment. For all spraying equipment, the Contractor shall provide facilities to prevent the loss of the compound between the nozzle and the concrete surface during the spraying operations.

At locations where the coating shows discontinuities, pinholes or other defects or if rain falls on the newly coated surface before the film has dried sufficiently to resist damage, an additional coat of the compound shall be applied immediately at the same rate of coverage specified herein.

To insure proper coverage, the Engineer or designated representative shall inspect all treated areas after application of the compound for the period of time designated in the specification for curing, either for membrane curing or for other methods. Dry areas are identifiable because of the lighter color of dry concrete as compared to damp concrete. All suspected areas shall be tested by placing a few drops of water on the suspected areas. If the water stands in rounded beads or small pools which can be blown along the surface of the concrete without wetting the surface, the water impervious film is present. If the water wets the surface of the concrete as determined by obvious darkening of the surface or by visible soaking into the surface, no water-impervious film is present. Should the foregoing test indicate that any area during the curing period is not protected by the required water-impervious film an additional coat or coats of the compound shall be applied immediately and the rate of application of the membrane compound shall be increased until all areas are uniformly covered by the required water-impervious film.

The compounds shall not be applied to a dry surface and if the surface of the concrete has become dry, it shall be thoroughly moistened prior to the application of the membrane by fogging or mist application. Sprinkling or coarse spraying will not be allowed.

When temperatures are such as to warrant protection against freezing, curing by this method shall be supplemented with an approved insulating material capable of protecting the concrete for the specified curing period.

If at any time there is reason to believe that this method of curing is unsatisfactory or is detrimental to the work, the Contractor, when notified, shall immediately cease the use of this method and shall change to curing by one of the other methods specified under this contract.

Curing compounds shall be compatible with the adhesion of toppings or overlays where curing has been applied to the concrete base surface in order to assure adequate bond.

When forms are stripped before the 4 minimum curing days have passed, curing shall continue by an approved method.

409S.5 - Measurement and Payment

Membrane curing will not be measured for payment. The work and materials prescribed herein will not be paid for directly, but shall be included in the unit price bid for the item of construction in which these materials are used.

End

<u>SPECIFIC CROSS REFERENCE MATERIALS</u>	
<u>Specification Item No. 409S, "Membrane Curing"</u>	
<u>American Society for Testing and Materials (ASTM)</u>	
<u>Designation</u>	<u>Description</u>
C 309	Liquid Membrane-forming Compounds for Curing Concrete
D 93	Pensky-Martin Closed Cup Tester

<u>RELATED CROSS REFERENCE MATERIALS</u>	
<u>Specification Item No. 409S, "Membrane Curing"</u>	
<u>Texas Department of Transportation: Standard Specifications for Construction and Maintenance of Highways, Streets, and Bridges</u>	
<u>Designation</u>	<u>Description</u>
Item 360	Concrete Pavement
Item 420	Concrete Structures

Item 421	Portland Cement Concrete
Item 427	Surface Finishes for Concrete
Item 431	Pneumatically Placed Concrete
Item 437	Concrete Admixtures
Item 520	Weighing and Measuring Equipment
Item 522	Portland Cement Concrete Plants
Item 524	Hydraulic Cement

ITEM NO. 432S - PORTLAND CEMENT CONCRETE SIDEWALKS 1-4-10

432S.1 - Description

This item shall govern the construction of Portland cement concrete sidewalks (Standard Detail No. 432S-1), as herein specified, on an approved subgrade and in conformance with the lines, grades and details indicated on the Drawings or as established by the Engineer or designated representative.

This specification is applicable for projects or work involving either inch-pound or SI units. Within the text inch-pound units are given preference followed by SI units shown within parentheses.

432S.2 - Submittals

The submittal requirements of this specification item include:

- A. Class A portland cement (p.c.) concrete mix design,
- B. Type of Installation (i.e. Type I, Type II, etc.) and construction details (i.e. cushion layer, base, reinforcing steel, joints, curing membrane),
- C. Identification of the type, source, mixture, Pure Live Seed (PLS) and rate of application of the seeding,
- D. Number, manufacturer, model, construction, finish and installation details of streetscape appurtenances of bicycle racks, benches, chairs, trash receptacles, streetlights, tree wells and above grade tree planters [for sidewalks, 12 feet (3.66 meters) or wider].

432S.3 - Materials

A. Portland Cement Concrete

Portland cement concrete shall be Class A conforming to Specification Item No. 403S, "Concrete for Structures" or Specification Item No. 407S, "Fibrous Concrete."

B. Reinforcement

Reinforcement shall conform to Specification Item No. 406S, "Reinforcing Steel" or Specification Item No. 407S, "Fibrous Concrete."

C. Expansion Joint Materials

Expansion joint materials shall conform to Specification Item No. 408S, "Expansion Joint Materials."

D. Membrane Curing Compound

Membrane curing compound shall conform to Specification Item No. 409S, "Membrane Curing."

432S.4 - Construction Methods

The subgrade shall be excavated in accordance with Specification Item No. 111S, "Excavation," prepared in accordance with Specification Item No. 201S, "Subgrade Preparation," shaped to the lines, grades and cross section as indicated on the Drawings or as directed by the Engineer or designated representative and thoroughly compacted in accordance with Specification Item No. 201S. A granular cushion of a minimum thickness of 2 inches (50 mm) but maximum thickness of 5 inches (125 mm), composed of crusher screenings, gravel and sand, crushed rock or coarse sand, shall be spread, wetted thoroughly, tamped and leveled. The granular cushion shall be moist at the time the Portland cement concrete is placed.

If the subgrade is undercut by more than 4 inches (100 mm) or the elevation of the natural ground is more than 4 inches (100 mm) below "top of subgrade," then a necessary backfill/embankment layer of an

approved material shall be placed and compacted with a mechanical tamper. Hand tamping will not be permitted.

Where the subgrade is rock or gravel, 70% of which is rock; the 2-inch (50 mm) cushion need not be used. The Engineer or designated representative will determine if the subgrade meets the above requirements.

Sidewalk forms shall be constructed of metal or well-seasoned wood not less than 2 inches (50 mm) in thickness, with a section satisfactory to the Engineer or designated representative. The forms shall be clean, straight, and free from warp with a depth equal to the thickness of the finished work. All forms shall be securely staked to line and grade and maintained in a true position during the deposition of Portland cement concrete. Before p.c. concrete is placed, the forms shall be thoroughly oiled with a light form oil.

Expansion joint material $\frac{3}{4}$ inch (19 mm) thick, shall be provided where the new construction abuts an existing structure, sidewalk or driveway. Similar expansion material shall be placed around all obstructions protruding through the sidewalk. The expansion joint material shall be placed vertically and shall extend the full depth of the p.c. concrete. Maximum spacing of expansion joints shall be 40 feet (12 meters) as indicated on the Drawings or as directed by the Engineer or designated representative. Weakened plane joints shall be spaced at 5 feet (1.5 meters) on center. Normal dimensions of the weakened plane joints shall be $\frac{1}{4}$ inch wide and $\frac{3}{4}$ inch deep (6 mm wide and 19 mm deep). All joints shall be constructed perpendicular (90 degrees) to the centerline of walk and shall match any previously placed concrete joints. For sidewalks with widths exceeding 6 feet (1.83 meters) longitudinal weakened-plane tooled joints shall be provided as indicated on the Drawings or as directed by the Engineer or designated representative.

Reinforcement for sidewalks shall consist either of polypropylene fibrillated fibers or 6" \times 6" \times W1.4 \times W1.4 (150mm \times 150mm \times MW9 \times MW9) welded wire fabric or one layer #3 (10M) reinforcing bars, placed no more than 18 inches (450 mm) on center both directions. All reinforcement shall be accurately placed at slab mid-depth, equidistant from the top and bottom of the p.c. concrete and held firmly in place by means of bar supports of adequate strength and number that will prevent displacement and keep the steel at its proper position during the placement of the p.c. concrete. In no instance shall the steel be placed directly on the subgrade or sand cushion layer.

Prior to placement of the concrete, the reinforcement installation shall be inspected by the Engineer or designated representative to ensure conformance with the drawings, specifications and this item. In addition, care shall be exercised to keep all steel in its proper position during placement of the p.c. concrete. If during placement of the concrete, the reinforcement is observed to loose bar support, float upward or move in any direction, the placement shall be stopped until corrective action is taken.

Splices in wire fabric shall overlap sufficiently to allow two pairs of transverse wires to be tied together and no splice of less than 6 inches (150 mm) will be permitted. Splices in the #3 (10M) bars shall have a minimum lap of 12 inches (300 mm).

Where driveways cross sidewalks, additional reinforcing shall be placed in the sidewalk as indicated on the Drawings.

Portland cement concrete sidewalk ramps shall be formed to produce a finished surface with detectable warnings (Standard Detail 432S-2A) in accordance with the requirements of the American Disabilities Act and Texas Accessibility Standards (TAS), including Sections 4.29.2 and A4.29.2. The p.c. concrete sidewalk ramps shall be constructed in accordance with appropriate City of Austin Standard Details (Standard Details 432S-3, 432S-3A through 432S-3H, 432S-5, 432S-5A, 432S-5B, etc.).

Detectable warning for the ramps shall consist of raised truncated domes with a diameter of nominal 0.9 inch (23 mm), a height of nominal 0.2 inch (5 mm) and center-to-center spacing of nominal 2.35 inches (60 mm) and shall contrast visually with adjoining surfaces, either light on dark or dark-on-light. The material used to provide contrast shall be an integral part of the walking surface.

When indicated on the Drawings or as directed by the Engineer or designated representative, the construction of the sidewalk ramp shall include the installation of interlocking concrete paving units (Standard Specification Item No. 480S, "Concrete Paving Units"). The concrete paving units shall be constructed in accordance with Standard Specification Item No. 485S, "Concrete Paving Units for Sidewalk Ramps" and appropriate City of Austin Standard Details (Standard Details 432S-2A, 432S-3, 432S-3A through 432S-3H, 432S-5, 432S-5A and 432S-5B).

At the proper time after finishing, the surface shall be protected by a membrane, compound curing agent or by wetted cotton or burlap mats, conforming to Item No. 409S, "Membrane Curing." The sides of the p.c. concrete shall be cured in the forms. If the forms are removed during the curing process, the curing shall be continued by the placement of fill against the exposed concrete edges or by other procedures conforming to Item No. 410S, "Concrete Structures." The top 4 inches (100 mm) of fill shall be clean topsoil conforming to Item No. 604S, "Seeding for Erosion Control."

Existing sidewalk that is scheduled for removal and replacement shall be removed and the underlying material shaped to the lines, grades and cross section as indicated in the drawings or as directed by the Engineer or designated representative. The removal and/or relocation of obstructions, including but not limited to signs, trash cans and benches on concrete pads, abandoned manholes, sprinkler control valves and landscaping, shall be performed, as indicated on the drawings, in a manner acceptable to the Engineer or designated representative. Removal and/or relocation of obstructions will be considered incidental work to this item and will not be paid for directly.

Existing PVC pipe drains in and behind curb shall be removed and replaced as required in new sidewalk and/or curb and gutter. In areas of proposed sidewalk construction, where curb and gutter is to remain in place, existing PVC pipe shall be cut far enough behind the back of curb to allow sufficient room for joint fittings to connect to new or salvaged PVC pipe.

The Contractor shall be responsible for removing and replacing mailboxes that are located in the construction area, while assuring that mail delivery will not be interrupted as a result of the construction activities. Mailboxes shall not be laid on the ground.

All necessary excavation, filling and grading of the slopes adjacent to the completed concrete sidewalks will be considered incidental work pertaining to this item and will not be paid for directly. The adjacent excavation and grading of the slopes shall be done in a manner acceptable to the Engineer or designated representative.

432S.5 - Streetscape Furniture Installation Requirements

A. General

Bicycle racks, benches and chairs, trash receptacles, tree wells and above grade tree wells and planters shall only be installed in sidewalks that are 12 feet (3.66 meters) or wider. When installation is indicated on the Drawings or directed by the Engineer or designated representative, these items shall be permanently installed as indicated in Standard Details 710S-4 and 710S-5; 432S-9B; 432S-7C, 432S-7F; and 432S-8B. Above grade tree wells shall be installed in conformance with Standard Detail 432S-7E, while above grade tree planters shall be installed in conformance with Standard Detail Nos. 432S-7D and 432S-7G.

B. Location Requirements

1. Benches.

Benches shall be placed either perpendicular to the curb with the center of the bench on line with trees and light poles and facing toward the building entry, or parallel to the building and within 6" (150 mm) of the building wall, facing out to the street.

Bench siting shall be in conformance with Standard Detail No. 432S-9C in 12' (3.6 M) or wider sidewalks and Standard Detail No. 432S-9D in sidewalks of width between 12' (3.6 M) and 18' (5.4 M).

2. Bike Racks.

Bike racks are to be placed perpendicular to the curb with the centerline of the rack on line with trees and light poles.

Bike rack siting shall be in conformance with Standard Detail No. 710S-6A in 12' (3.6 M) or wider sidewalks and Standard Detail No. 710S-6B in sidewalks of width between 12' (3.6 M) and 18' (5.4 M).

3. Trash Receptacles.

Trash receptacles shall either be placed along the curb, with the center line of the receptacle on line with the trees and light poles, or shall be located at the building entry in alignment with the structural bay system of the building. If located at the entry there shall be no more than 1 foot (300 mm) clearance between the receptacle and the building wall.

Trash receptacle siting adjacent to curb ramps within an intersection shall be in conformance with Standard Detail No. 432S-8C in 12' (3.6 M) or wider sidewalks.

432S.6 - Pedestrian Railing

When a pedestrian railing installation is required along sidewalks for pedestrian protection as indicated on the Drawings or directed by the Engineer or designated representative, this type of pedestrian railing shall be permanently installed in conformance with one of the following designated Standard Details: 707S-1, 707S-2, 707S-3 or 707S-4.

When a pedestrian railing installation is required along portions of sidewalks identified as 'ramps' for ADA accessibility purposes as indicated on the Drawings or directed by the Engineer or designated representative, this type of pedestrian railing shall be permanently installed in conformance with one of the following designated Standard Details: 707S-2, 707S-3 or 707S-4.

432S.7 - Measurement

Accepted work performed as prescribed by this item will be measured by the square foot (square meter: 1 square meter is equal to 10.764 square feet) of surface area of "Concrete Sidewalk."

Accepted work performed as prescribed by "Sidewalk Ramps" will be measured per each for the type of ramp indicated on the Drawings.

Accepted work performed as prescribed by "Streetscape Appurtenances" will be measured per each for the type of appurtenance indicated on the drawings.

Accepted work performed as prescribed by "Pedestrian Railing" will be measured per lineal foot of the type of railing indicated on the Drawings.

432S.8 - Payment

The work performed as prescribed by this item for concrete sidewalk will be paid for at the unit bid price per square foot for "Concrete Sidewalk" and/or "Sidewalks Reconstruction"; per each for "Concrete Sidewalk Ramps" and "Streetscape Appurtenances" or per lineal foot for "Pedestrian Railing".

The unit bid price for new sidewalk shall include full compensation for excavating and/or removal and/or relocating obstructions, vegetating adjacent areas disturbed by sidewalk construction, preparing the subgrade; for furnishing and placing all materials including cushion material, all reinforcement, bar

supports, joints, expansion joint materials, and for any other materials, manipulations, labor, tools, equipment, finishing, curing and incidentals necessary to complete the work.

The unit bid price for sidewalk reconstruction shall include full compensation for excavating and/or removal of existing sidewalk and other obstructions, relocating obstructions, replacing PVC drain pipe, re-vegetating adjacent areas disturbed by sidewalk construction, preparing the subgrade; for furnishing and placing all materials including cushion material, all reinforcement, bar supports, joints, expansion joint materials, and for any other materials, manipulations, labor, tools, equipment, finishing, curing and incidentals necessary to complete the work.

The unit bid price for ramps shall include full compensation for preparing the subgrade when not included as a separate item; for furnishing and placing all materials, manipulation, labor, tools, equipment and incidentals necessary to complete the work. All necessary excavation, filling and grading of the slopes adjacent to the completed concrete paver units will be included in the unit price bid for the item of construction in which this item is used, unless included as a separate pay item in the Contract bid form.

The unit bid price for streetscape appurtenances shall include full compensation for the individual item (i.e. bench, chair, bicycle rack, trash receptacle, street light or above grade tree planter), as well as the removal of existing sidewalk, preparation of footings, furnishing and placing all materials, manipulation and finishing, labor, tools, equipment and incidentals necessary to complete the work.

The unit bid price for pedestrian railing shall include full compensation for the complete installation of the specific pedestrian railing including but not limited to preparation of footings or curb, furnishing and placing all materials, manipulation and finishing, labor, tools, equipment and incidentals necessary to complete the work.

Payment will be made under one of the following:

New Sidewalks		
Pay Item 432S-4:	New P.C. Concrete Sidewalks, 4 Inch thickness	Per Square Foot.
Pay Item 432S-5:	New P.C. Concrete Sidewalks, 5 Inch thickness	Per Square Foot.
Pay Item 432S-6:	New P.C. Concrete Sidewalks, 6 Inch thickness	Per Square Foot.
Pay Item 432S-7:	New P.C. Concrete Sidewalks, 7 Inch thickness	Per Square Foot.
Sidewalks Reconstruction		
Pay Item 432SR-4:	Reconstruct Concrete Sidewalks to 4 Inch thickness, including	Per Square

	removal of existing sidewalk	Foot.
Pay Item 432SR-5:	Reconstruct Concrete Sidewalks to 5 Inch thickness, including removal of existing sidewalk	Per Square Foot.
Pay Item 432SR-6:	Reconstruct Concrete Sidewalks to 6 Inch thickness, including removal of existing sidewalk	Per Square Foot.
Pay Item 432SR-7:	Reconstruct Concrete Sidewalks to 7 Inch thickness, including removal of existing sidewalk	Per Square Foot.
Ramps		
Pay Item 432S-RP-1:	P.C. Sidewalk Curb Ramp with Pavers (Type I)	Per Each.
Pay Item 432S-RP-1A:	P.C. Sidewalk Curb Ramp with Pavers (Type IA)	Per Each.
Pay Item 432S-RP-1B:	P.C. Sidewalk Curb Ramp with Pavers (Type IB)	Per Each.
Streetscape Appurtenances		
Pay Item 432S-SAC-1:	Streetscape Bench (_____ inches in length)	Per Each.
Pay Item 432S-SAC-2:	Streetscape Chair	Per Each.
Pay Item 432S-SAC-3:	Streetscape Bicycle Rack	Per Each.
Pay Item 432S-SAC-4:	Streetscape Trash Receptacle	Per Each.
Pay Item 432S-SAC-5:	Streetscape Street Light	Per Each.
Pay Item 432S-SAC-7C:	Streetscape Tree Well for Concrete Sidewalks	Per Each.
Pay Item 432S-SAC-7D:	Streetscape Above Grade Tree Planters	Per Each.
Pay Item 432S-SAC-7E:	Streetscape Tree Well with Seat	Per Each.

Pay Item 432S-SAC-7F:	Streetscape Tree Well without Grate	Per Each.
Pay Item 432S-SAC-7G:	Streetscape Above Grade Galvanized Steel Tree Planters	Per Each.
Pesdestrian Railing		
Pay Item 432S-PRC-1:	Pedestrian Railing (Standard 707S-1)	Per LF.
Pay Item 432S-PRC-2:	Pedestrian ADA Railing - Option 1 (Standard 707S-2)	Per LF.
Pay Item 432S-PRC-3:	Pedestrian ADA Railing - Option 2 (Standard 707S-3)	Per LF.
Pay Item 432S-PRC-4:	Pedestrian ADA Railing - Option 3 (Standard 707S-4)	Per LF.

End

<u>SPECIFIC CROSS REFERENCE MATERIALS</u>	
<u>Specification 432S, "Portland Cement Concrete Sidewalks"</u>	
<u>City of Austin Standard Specifications</u>	
<u>Designation</u>	<u>Description</u>
Item No. 111S	Excavation
Item No. 201S	Subgrade Preparation
Item No. 403S	Concrete for Structures
Item No. 406S	Reinforcing Steel
Item No. 407S	Fibrous Concrete
Item No. 408S	Expansion Joint Materials

Item No. 409S	Membrane Curing
Item No. 410S	Concrete Structures
Item No. 480S	Concrete Paving Unit
Item No. 485S	Concrete Paving Units for Sidewalk Ramps
Item No. 604S	Seeding for Erosion Control
<u>City of Austin Standard Details</u>	
<u>Designation</u>	<u>Description</u>
432S-1	Sidewalk
432S-2A	Detectable Warning-Paver
432S-3	Type I Curb Ramps-Full Intersection
432S-3A	Type I Curb Ramps-T Intersection
432S-3B	Type IA/IB Curb Ramps-Full Intersection
432S-3C	Type IA/IB Curb Ramps-T Intersection
432S-3D	Combined Curb Ramps-Full Intersection
432S-3E	Combined Curb Ramps-T Intersection
432S-3F	Combined Sidewalk Curb Ramp with Pavers
432S-3G	Combined Sidewalk Curb Ramp with Pavers within Limited ROW
432S-3H	Type I Curb Ramps within PC/PT of Curb and Gutter
432S-5	Type I Sidewalk Curb Ramp
432S-5A	Type IA Sidewalk Curb Ramp

432S-7C	Tree Well for New Trees Planted Within Concrete Sidewalk 3.6 M (12') or Greater
432S-7D	Above Grade Tree Planters
432S-7E	Above Grade Tree Well with Bench
432S-7F	Tree Well Without Grate
432S-7G	Above Grade Galvanized Steel Tree Planters
432S-8B	Trash Receptacle Installation in Concrete Sidewalk
432A-8C	Furnishing Location in 12' (3.6 M) or greater Trash Receptacle Siting
432S-9B	Bench/Chair Installation in Sidewalks
432S-9C	Furnishing Location in 12' (3.6 M) or greater Sidewalks-Bench Siting
432S-9D	Furnishing Location in Greater than 12' (3.6 M) or Less than 18' (5.4 M) Sidewalks-Bench Siting
707S-1	Pedestrian Railing
707S-2	Pedestrian ADA Railing - Option 1
707S-3	Pedestrian ADA Railing - Option 2
707S-4	Pedestrian ADA Railing - Option 3
710S-4	Bicycle Rack Installation in Concrete Sidewalks (Alternate 1)
710S-5	Bicycle Rack Installation in Concrete Sidewalks (Alternate 2)
710S-6A	Furnishing Location in 12' (3.6 M) or greater Sidewalks-Bicycle Rack Siting
710S-6B	Furnishing Location in Greater than 12' (3.6 M) or Less than 18' (5.4 M) Sidewalks-Bicycle Rack Siting
American Disabilities Act, Federal Register; Volume 56, No. 144; July 26, 1991 ADA Accessibility	

<u>Guidelines For Building And Facilities</u>	
<u>Designation</u>	<u>Description</u>
Section 4.29	Detectable Warnings on Walking Surfaces
Section A4.29.2	Detectable Warnings on Walking Surfaces
<u>Architectural Barriers; Texas Civil Statutes, Article 9102; June 14, 1995 Texas Accessibility Standards (TAS)</u>	
<u>Designation</u>	<u>Description</u>
Section 4.29	Detectable Warnings on Walking Surfaces
Section A4.29.2	Detectable Warnings on Walking Surfaces

<u>RELATED CROSS REFERENCE MATERIALS</u>	
<u>Specification 432S, "Portland Cement Concrete Sidewalks"</u>	
<u>City of Austin Standard Contract Documents</u>	
<u>Designation</u>	<u>Description</u>
00700	General Conditions
01500	Temporary Facilities
01550	Public Safety and Convenience
<u>City of Austin Utilities Criteria Manual</u>	

<u>Designation</u>	<u>Description</u>
Section 5.2.3	Utility Adjustments For Roadway Construction Projects
<u>City of Austin Standard Specifications</u>	
<u>Designation</u>	<u>Description</u>
Item No. 102S	Clearing and Grubbing
Item No. 104S	Removing Portland Cement Concrete
Item No. 110S	Street Excavation
Item No. 132S	Embankment
Item No. 203S	Lime Treatment for Materials In Place
Item No. 204S	Portland Cement Treatment for Materials In Place
Item No. 230S	Rolling (Flat Wheel)
Item No. 232S	Rolling (Pneumatic Tire)
Item No. 234S	Rolling (Tamping)
Item No. 236S	Rolling (Proof)
Item No. 360S	Concrete Pavement
Item No. 402S	Controlled Low Strength Material
Item No. 404S	Pneumatically Placed Concrete
Item No. 405S	Concrete Admixtures
Item No. 411S	Surface Finishes for Concrete
Item No. 436S	P.C. Concrete Valley Gutters

Item No. 602S	Sodding for Erosion Control
Item No. 610S	Preservation of Trees and Other Vegetation
Item No. 642S	Silt Fence
<u>City of Austin Standard Details</u>	
<u>Designation</u>	<u>Description</u>
432S-8A	Trash Receptacle Installation in Concrete Paver Sidewalk
432S-9A	Bench Installation in Concrete Paver Sidewalk
432S-10	Mailbox Placement Detail
433S-1	Type I Driveway (1 & 2 Family Residential Use Only)
433S-1A	Flared Type I Driveway (1 & 2 Family Residential Use Only)
433S-2	Type II Driveway
433S-3	Temporary Driveway
436S-2	Concrete Valley Gutter
470S-1	Curb Cut for Ramp or Driveway (Optional)
710S-3	Bicycle Rack Installation in Concrete Paver Sidewalks (Alternate 1)
1000-8(A)	Typical ROW and Front Lot Utility Assignments
1000-8(B)	Typical Single Service Utility Assignment Details (TV,W,WW)
1000S-10	Local Street Sections
1000S-11	Residential and Neighborhood Collector Street Sections
1000S-12	Primary Collector Street Sections

1000S-13	Minor Arterial Street Sections
1000S-14	Major Arterial Street Sections
<u>Texas Department of Transportation: Standard Specifications for Construction and Maintenance of Highways, Streets, and Bridges</u>	
<u>Designation</u>	<u>Description</u>
Item No. 100	Preparing Right of Way
Item No. 110	Excavation
Item No. 112	Subgrade Widening
Item No. 132	Embankment
Item No. 164	Seeding for Erosion Control
Item No. 204	Sprinkling
Item No. 210	Rolling (Flat Wheel)
Item No. 211	Rolling (Tamping)
Item No. 213	Rolling (Pneumatic Tire)
<u>American Disabilities Act, Federal Register; Volume 56, No. 144; July 26, 1991 ADA Accessibility Guidelines For Building And Facilities</u>	
<u>Designation</u>	<u>Description</u>
Section 4.3	Accessible Route
Section 4.3.6	Surface Texture
Section 4.3.7 & 4.7.2	Slope

Section 4.3.8 & 4.5.2	Changes in Levels
Section 4.7	Curb Ramps
Section 4.8	Ramps
Architectural Barriers; Texas Civil Statutes, Article 9102; June 14, 1995 Texas Accessibility Standards (TAS)	
<u>Designation</u>	<u>Description</u>
Section 4.3	Accessible Route
Section 4.3.6	Surface Texture
Section 4.3.7 & 4.7.2	Slope
Section 4.3.8 & 4.5.2	Changes in Levels
Section 4.7	Curb Ramps
Section 4.8	Ramps

SECTION 02 41 00

SELECTIVE DEMOLITION

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Remove and dispose of existing clay tiles, mortar setting bed, drainage media, waterproofing, leveling course, sealant and ancillary materials at east and west breezeway decks.
 - 2. Remove and repair damaged areas of concrete at deck surfaces.

1.2 RELATED WORK

- A. Section 03 01 30 - Concrete Repair
- B. Section 09 30 23 - Glass Mosaic Tiling

1.3 REFERENCES

- A. American National Standards Institute (ANSI)
 - 1. A10.6-2006 (R1998): *Safety Requirements for Demolition Operations – American National Standard for Construction and Demolition Operations*
- B. National Fire Protection Association (NFPA)
 - 1. 241 - *Standard for Safeguarding Construction, Alteration, and Demolition Operations; latest edition*
- C. International Concrete Repair Institute (ICRI)
 - 1. 310.2R - 2013, *Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, Polymer Overlays, and Concrete Repair*
- D. ASTM International (ASTM):
 - 1. ASTM D4258, Standard Practice for Surface Cleaning Concrete for Coating
 - 2. ASTM D4259, Standard Practice for Abrading Concrete

1.4 DEFINITIONS

- A. Remove: Detach items from existing construction and legally dispose of them off-site, unless indicated to be removed and salvaged, or removed and reinstalled.
- B. Remove and Reinstall: Detach items from existing construction, prepare them for reuse, and reinstall them where indicated.

- C. Remove and Salvage: Detach items from existing construction and securely store away from work area.
- D. Existing to Remain: Existing items of construction that are not to be removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

1.5 SUBMITTALS

- A. Schedule of Selective Demolition Activities: Indicate detailed sequence of selective demolition and removal work, including start and end dates for each activity, interruption of utility services, and locations of temporary partitions and means of egress.
 - 1. Provide shop drawings for temporary protection, enclosures, and shoring for removal operations at openings, walls, and ceilings. Shop Drawings shall be prepared by a licensed Professional Engineer in the state of Texas (Engineer-of-Record for the shoring) and shall be identified as such by a stamp and signature on the Shop Drawings.
- B. Submit a plan for confining, collecting, and disposing of broken concrete, existing reinforcing, and other waste material that result from the removal operations and surface preparation.
- C. Landfill Records: Indicate receipt and acceptance of wastes by a landfill facility.
- D. Submit qualifications of experience performing demolition work.

1.6 QUALITY ASSURANCE

- A. Demolition Firm Qualifications: An experienced firm that has specialized in demolition work similar in material and extent to that indicated for this Project.
- B. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.
- C. Standards: Comply with ANSI A10.6 and NFPA 241.
- D. Pre-demolition Meeting: Prior to demolition of substantial elements, schedule a meeting at the site with the Engineer to verify areas of demolition.
- E. Provide mock-up of concrete demolition and repair, including surface preparation of steel reinforcement. Mock-up may be used as part of the completed work.
 - 1. Mockup shall demonstrate the Contractor's ability to obtain the proper condition and profile of prepared concrete surfaces.
 - 2. Surface preparation shall demonstrate Contractor's ability to clean existing concrete, rust, mill scale, or other debris from the bar surfaces.
 - 3. Application of corrosion-inhibitive coating shall demonstrate Contractor's ability to adequately coat existing reinforcing and minimize spillage on concrete surfaces.
 - 4. Perform limited exploratory demolition at bottom of spandrel beam, no more than 1 foot in length to confirm the presence and type of reinforcement at the face of the spandrel beam ledge.

- F. Provide access and allow time for evaluation of concrete substrate below existing waterproofing system by Engineer and/or Owner. Core samples may be taken to verify makeup of the underlying construction subsequent to removal of existing waterproofing system.
- G. Inspections are to be performed at critical steps throughout the demolition and repair process. Unless indicated otherwise, the Engineer shall perform inspections. Provide 48 hours minimum notice for inspection of concrete and steel repairs prior to casting repair concrete or coating steel elements.

1.7 PROJECT CONDITIONS

- A. Conduct selective demolition so that disruptions to Owner's operations will be minimized.
- B. Conditions existing at time of inspection for bidding purposes will be maintained by Owner to the extent practical.
- C. Notify Engineer of discrepancies between existing conditions and Drawings before proceeding with selective demolition.
- D. Hazardous Materials: If materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify Engineer and Owner.
- E. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.

PART 2 PRODUCTS

2.1 EQUIPMENT

- A. Chipping hammers of nominal 15-lb. class or less for removal of concrete from beneath and adjacent to reinforcing steel, and for detail work.
- B. Surface preparation equipment used shall be subject to approval of the Engineer and shall comply with the following:
 - 1. Sandblasting Equipment: Sand blasting equipment shall be capable of removing rust, oil, and concrete laitance from the existing surface of the structural deck and exposed reinforcement. This will require equipment capable of maintaining at least 100 psi. Equipment shall comply with local requirements for noise and air environmental standards.
 - 2. Compressed air equipment capable of removal of dust and dirt from concrete repair areas, and exposed concrete surfaces. Air shall be oil free; filters and/or driers shall be provided to achieve this requirement.
 - 3. Vacuum equipment capable of removing concrete dust and debris from repair area and exposed concrete surfaces.
 - 4. Saws or abrasive grinding wheels capable of sawing the concrete to the specified depth or grinding expansion anchors or other protruding steel flush with the concrete.

- C. Enclosure for sandblasting activities: Tarps, panels, or other methods to prevent dust from escaping the immediate area to prevent contamination of adjacent vehicles and ensure no health hazards to occupants.
- D. Concrete Surface Profile (CSP) Chips: Supply and provide on-site at all times set of ICRI CSP chips in accordance with ICRI No. 310.2R for purposes of surface preparation and inspection of concrete demolition surfaces.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.
- B. Inventory and record the condition of items to be removed and reinstalled and items to be removed and salvaged, where applicable.
- C. When unanticipated mechanical, electrical, or structural elements that conflict with intended functions or designs are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to the Engineer.
- D. Perform surveys as the Work progresses to detect hazards resulting from selective demolition activities. Promptly notify Engineer if hazards are encountered.

3.2 PROTECTION

- A. In addition to protection present at site, design and provide temporary canopies, walls, and signage to ensure the safe passage of persons in and around the area of demolition. Conduct operations to prevent injury to persons, the structure, and other facilities.
- B. Provide shoring, bracing, or support to safely and adequately prevent movement, settlement or collapse of existing construction during demolition and of structures and facilities to remain. Contractor to design shoring.
- C. When exits are temporarily blocked, an alternate evacuation plan shall be prepared, approved by the Owner and posted.
- D. Provide weather-tight enclosure of opening along removed areas from the weather until removed portions are completely replaced with new construction.
- E. Maintain existing utilities, keep in service, and protect against damage during demolition operations. Do not interrupt existing utilities serving occupied or used facilities, except when authorized in writing by Owner. Provide temporary services during interruptions to existing utilities.

3.3 PREPARATION

- A. Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walkways, existing utility services, and surrounding site and water.

3.4 GLASS TILE AND MORTAR REMOVAL

- A. General: Demolish and remove existing elements only to the extent required by the Work and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:
 - 1. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing, grinding, or chipping, not hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.
 - 2. Cut or drill into concealed surfaces from the exposed or finished side to avoid marring existing finished surfaces.
 - 3. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on structure.
 - 4. Dispose of demolished items and materials promptly.
- B. Proceed with demolition in a systematic manner. Coordinate selective demolition with installation of temporary protective measures or new work to maintain a weathertight building envelope.
- C. Remove overhead materials and lower to ground level by means of hoists, derricks, or other suitable methods.
- D. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition.
- E. Take care to limit damage of existing glass tile during removal of existing glass tile and mortar backup. If possible, save and reuse existing tile for repair.
- F. Existing mortar behind tile to be removed using sawcutting, grinders, chipping hammers or other equipment as necessary to remove existing mortar material. Limit demolition of existing concrete to work required to roughen the existing surface.

3.5 CONCRETE SURFACE PREPARATION

- A. Remove the existing mortar backup material and any waterproofing membrane (if present) on the structural concrete in all areas as shown on the Drawings.
- B. Surface Preparation: Roughen and clean concrete surfaces to be repaired in accordance with ASTM D4258, *Surface Cleaning of Concrete* and ASTM D4259, *Abrading Concrete* to provide clean coarse surface. Achieve minimum surface profile of CSP 8 in accordance with ICRI No. 310.2R. Care should be taken not to bruise or damage remaining concrete substrate. Micro-fracturing of the concrete substrate is not acceptable.

- C. Any areas of the prepared surface contaminated by oil or other materials detrimental to the bond of the new concrete as a result of the Contractor's operations shall be removed. Remove contaminated concrete by saw-cutting, chipping out, sandblasting, or air blasting. Such cleaning or removal work will be paid for by the Contractor.
- D. The newly exposed concrete shall be cleaned by blowing away loose material with a sandblast, followed by cleaning with a compressed air jet.
- E. The Engineer shall be allowed a minimum of 48 hours for the observation of properly prepared concrete surfaces and reinforcement, before the scheduled concrete placement. Notify the Engineer 48 hours in advance for any observation.
- F. If more than 48 hours has elapsed since the patch area was sandblasted and cleaned with high pressure compressed air at the point in time when the patch material is to be placed, then the patch area must be blown clean again with high pressure compressed air, and light sandblast if necessary, immediately prior to placement of the patch material.
- G. No removal of concrete by means of mechanical impact shall proceed following the placement of repair concrete until 48 hours of curing has elapsed, unless otherwise approved by the Architect/Engineer.

3.6 DISPOSAL OF DEMOLISHED MATERIALS

- A. Except for items or materials indicated to be recycled, reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property, remove demolished materials from Project site and legally dispose of them in an EPA-approved landfill at the end of the Project or as directed by the Owner.
- B. Do not burn demolished materials.
- C. Transport demolished materials off of Owner's property and legally dispose of them.

3.7 CLEAN UP

- A. Contractor shall be responsible for confining, collecting, and disposing of broken concrete, shot, sandblast grit, dust, existing reinforcing and other waste material that result from the removal operations and surface preparation.
- B. Regulated clean up procedures are to be followed if any of the site is affected. Contact Owner immediately if the site is disturbed by Work.
- C. Clean adjacent sites and buildings of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

END OF SECTION

SECTION 03 01 30

CONCRETE REPAIR

PART 1 - GENERAL

1.1 DESCRIPTION

- A. This work shall consist of providing the necessary labor, materials, equipment and supervision to form, place, finish and cure concrete which is cast at properly prepared surfaces, namely repair at existing structural concrete walls. Reference Section 03 01 35 for alternate specifications for structural concrete wall repair utilizing shotcrete. Reference Section 432S for repair of concrete sidewalks. Concrete materials specified in Sections 03 01 35 and Section 432S are not to be used for Section 03 01 30 repairs unless expressly approved by Engineer.
- B. Additional information is provided herein in the event that unforeseen conditions are exposed, including shallow-depth repair procedures and reinforcing bar treatments.
- C. Related Work
 - 1. Section 403S - Concrete for Structures
 - 2. Section 432S - Portland Cement Concrete Sidewalks
 - 3. Section 02 41 00 - Selective Demolition
 - 4. Section 03 01 35 - Shotcrete

1.2 REFERENCED STANDARDS

- A. International Concrete Repair Institute (ICRI), latest edition:
 - 1. Technical Guide No. 310.1R - *Guide for Surface Preparation for the Repair of Deteriorated Concrete Resulting from Reinforcing Steel Corrosion*
 - 2. Technical Guide No. 310.2 - *Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, and Polymer Overlays*
- B. ASTM International (formerly American Society for Testing and Materials):
 - 1. A615 - Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement
 - 2. A706 - Standard Specification for Deformed and Plain Low-Alloy Steel Bars for Concrete Reinforcement
 - 3. C33 - Standard Specification for Concrete Aggregates
 - 4. C39 - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens
 - 5. C143 - Standard Test Method for Slump of Hydraulic-Cement Concrete
 - 6. C172 - Standard Practice for Sampling Freshly Mixed Concrete
 - 1. C173 - Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method
 - 2. C231 - Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method
- C. American Concrete Institute (ACI)
 - 1. ACI 117 - Standard Specifications for Tolerances for Concrete Construction and Materials

2. ACI 301 - Standard Specification for Structural Concrete
3. ACI 305R - Guide to Hot Weather Concreting
4. ACI 306R - Guide to Cold Weather Concreting
5. ACI 318 - Building Code Requirements for Structural Concrete
6. ACI 347 - Guide to Formwork for Concrete

1.3 SUBMITTALS

- A. Product Data:
 1. List of proposed materials, including aggregates for extension, and additives.
 2. Technical data sheets for each type of manufactured material and product indicated, including but not limited to:
 - a. Repair materials
 - b. Curing compound
 3. Material safety data sheets for information only.
 4. Written verification from manufacturer of aggregate extension requirements.
- B. Design Mixtures: For each concrete mixture performed within the last six months by an independent testing laboratory or concrete suppliers which meet the requirements of this Section. Submit alternate design mixtures when characteristics of materials, project conditions, weather, test results, or other circumstances warrant adjustments. The mix design shall include:
 1. Proportioning of all materials
 2. Slump flow
 3. Air entrainment
 4. 7 and 28-day compressive strength historical data
 5. Sieve analysis and source of fine and coarse aggregates
 6. Amount of water to be withheld for later addition at project site
- C. Furnish Engineer with copies of batch tickets for each batch of concrete delivered to job-site.
- D. Concrete Placement Plan, including control measures for ensuring Saturated Surface Dry (SSD) substrate prior to placement and limiting effects due to temperature and humidity during placement, finishing, and curing.
- E. Field Quality Control Plan.

1.4 WARRANTY

- A. Manufacturer and Contractor Joint Warranty:
 1. Time period: Two (2) years after date of completion and acceptance by the Owner.
 2. Terms: Include all labor, materials, tools, equipment and services necessary for proper repair, restoration, or replacement of all new work damaged as result of:
 - a. Defects, imperfections, or faults in:
 - 1) Materials
 - 2) Workmanship
 - b. Corrections of defects, imperfections, and faults shall not relieve Contractor from his responsibility for additional corrective work during the remaining time period.
 3. The warranty shall include replacement of glass tile and any overburden material requiring removal in order to assess and repair the defective concrete.

1.5 QUALITY REQUIREMENTS

- A. Work specified herein shall be performed by, and be the responsibility of, Contractor and approved by the manufacturers of materials used; Contractor shall have necessary equipment and facilities to fulfill the work requirements of this Section.
- B. Installer Qualifications: An experienced installer who has completed concrete work similar in material, design, and extent to that indicated for this Project for at least three (3) years, and whose work has resulted in construction with a record of successful in-service performance.
- C. Field Supervision: Maintain experienced full-time supervisors on Project site during times that removal, preparation, and installation work is in progress. Do not change supervisors during Project except for causes beyond the control of the Contractor.
- D. Contractor's Quality Control System:
 - 1. Contractor's quality control system is the means of assurance that construction complies with the requirements of specification and the Engineer. Controls shall be adequate to cover all construction operations and shall be overseen by Contractor's Quality Control Supervisor.
 - 2. Establish a quality control system and perform sufficient inspection and tests of all items of Work, including that of Subcontractors, to ensure conformance to the specification for materials, workmanship, construction, finish, functional performance, and identification.
 - 3. Maintain records of all inspections and tests performed, instructions received from Engineer or Testing Agency, and actions taken as a result of those instructions. These records shall include evidence that the required inspections or tests have been performed (including type and number of inspections or tests, nature of defects, causes for rejection, etc.), proposed or directed remedial action, and corrective action taken. Contractor shall document inspections and tests as required by this section.
 - 4. Testing and Inspection: In quality control plan, include a comprehensive schedule of Work requiring testing or inspection, including the following:
 - a. Contractor-performed tests and inspections including subcontractor-performed tests and inspections. Include required tests and inspections and Contractor-elected tests and inspections.
 - b. Reference tests and inspections indicated in Section 01 40 00.
 - 5. Continuous Inspection of Workmanship: Describe process for continuous inspection during construction to identify and correct deficiencies in workmanship in addition to testing and inspection specified. Indicate types of corrective actions to be required to bring work into compliance with standards of workmanship established by specification and Project Specific Documents.
 - 6. Contractor shall promptly remove and replace materials or fabricated components that do not comply with the specified requirements at no additional cost to Owner.
- E. Provide mock-up of concrete demolition and repair, including surface preparation and steel reinforcement. Mock-up may be used as part of the completed work.
 - 1. Mock-up shall demonstrate the Contractor's ability to obtain the proper condition and profile of prepared concrete surfaces.
 - 2. Surface preparation shall demonstrate Contractor's ability to clean existing concrete.
- F. Field Quality Control / Quality Assurance Testing:
 - 1. Sampling of materials shall be in accordance with ASTM C172 and will be performed on grade.

- a. When pumping, the repair material will be directed to a wheel barrow or other suitable means for testing agency to acquire sufficient materials for testing and casting all specimens (approximately 1-1/2 cubic feet). Material collected after pumping.
 - b. Collect first test sample at beginning of placement, and subsequent samples at frequency noted in Table 1 below.
 - c. Samples from proprietary repair material shall be taken from the second batch prepared. If two or more mixers are used, ensure that samples are obtained from mixers in an alternating fashion.
2. Test Sample Set:
 - a. Six 4-inch-diameter by 8-inch-long cylinders will be made and cured in accordance with ASTM C31/C31M. For self-consolidating concrete, fabricate test cylinders in accordance with ASTM 1758/1758M. The number of required sets shall be in accordance with the Table 1 below.
 - b. Slump in accordance with ASTM C143/C143M.
 - c. For self-consolidating concrete: slump flow in accordance with ASTM C1611/C1611M. Note visual stability index.
 - d. Air content in accordance with ASTM C173 or ASTM C231
 - e. Concrete and air temperature in accordance with ASTM C1064/C1064M.
3. Cylinders will be cured under field conditions for 1 day; then transported to testing laboratory and cured for remaining period until testing.
4. For each test sample set, 2 cylinders will be tested in compression at 24 hours, 2 cylinders at 7 days and 2 cylinders at 28 days. Compression tests will be performed in accordance with ASTM C39/C39M and strength test result shall be an average of two cylinders cast from same sample and tested at a given age.
5. Test reports for each test sample will include following information:
 - a. Specimen number.
 - b. Portion of structure represented by material tested.
 - c. Date cast.
 - d. Date tested.
 - e. Slump or slump flow and visual stability index.
 - f. Air content.
 - g. Concrete and air temperature.
 - h. Individual cylinder strength and type of failure.
 - i. Repair material strength on product data sheet.
 - j. Notice if test indicates repair material does not conform with following criteria:
 - k. Repair material strength will be considered satisfactory if average of two 28-day test results meets or exceeds the specified 28-day strength and neither 28-day test results is below 90% of the specified 28-day strength.
6. Testing frequency shall be as outlined below:

Table 1: QA/QC Material Testing Procedures

QA Testing	QC Testing			
Compression (ASTM C39)	Slump (ASTM C143) or Slump flow (ASTM C1611)	Unit Weight (ASTM C138)	Air Content (ASTM C173 or ASTM C231)	Concrete and Air Temp (ASTM C1064)
1 set / 75 cu. ft. 6 cylinders (2 - 1 day, 2 - 7 days, 2 - 28 days)	1 test / placement 1 test / material	1 test/ 75 cu. ft. 1 test / material	1/75 cu. ft. 1/material	1 test /placement 1 test / material

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle materials according to manufacturer's recommendations and in such manner as to prevent damage to materials and structure.
- B. Keep materials dry and do not allow materials to be exposed to moisture during transportation, storage, handling, or installation. Reject and remove from Site new materials which exhibit evidence of moisture exposure.
- C. Deliver materials to Project site in original, unopened containers, labeled with manufacturer's name, product brand name and type, date of manufacture, lot number, and directions for storing and mixing with other components.
- D. Store materials in original, undamaged containers in clean, dry, protected location on raised platforms with weather-protective coverings, within temperature range required by manufacturer. Protect stored materials from direct sunlight.
- E. Store aggregate stockpile in manner to avoid segregation or contamination with foreign matter. Store away from normal drainage paths and cover with canvas or plastic if necessary to keep dry.
- F. If containers become torn or otherwise damaged prior to use, dispose of affected materials.
- G. Limit stored materials on structures to safe loading of structure at time materials are stored and to avoid permanent deflection.
- H. Conspicuously mark unlabeled, damaged, or opened containers or containers with contaminated materials and remove from site as soon as possible.
- I. Remove and replace materials that cannot be applied within stated shelf life.

1.7 PROJECT CONDITIONS

- A. Verify existing dimensions and details prior to placement of concrete repair. Notify the Engineer of conditions found to be different than those indicated in Project Specific Documents. The Engineer will review condition and inform Contractor of changes.
- B. Environmental Limitations: Install materials at temperatures, humidity, and other environmental conditions recommended by material manufacturer.

- C. Handle and install materials in strict accordance with safety requirements of material manufacturers, Material Safety Data sheets.
- D. Maintain adequate ventilation during surface preparation and placement of materials.

1.8 CHANGES IN WORK

- A. During concrete repair Work, existing conditions may be encountered which are not known or are at variance with Project Documents. Such conditions may interfere with Work and may consist of damage or deterioration of substrate or surrounding materials that could jeopardize integrity or performance of Work.
- B. Notify the Engineer of conditions that may interfere with proper execution of Work prior to proceeding with Work.

PART 2 PRODUCTS

2.1 CONCRETE REPAIR MATERIALS

- A. Specified 28-day compressive strength: 4,000 psi.
- B. Formed-and-poured repairs on vertical surfaces, 3/4-inch to 2-1/2 inch thick placements:
 - 1. Ready-mix, self-consolidating concrete meeting the following minimum requirements.
 - a. Slump Flow (ASTM C1611): 20 - 26 inches
 - b. Flow Rate (T_{50} time): 3 – 8 seconds
 - c. Visual Stability Index (VSI): 0 or 1
 - d. Slant shear bond strength (ASTM C882, 28 days): 3,000 psi
 - e. Shrinkage (ASTM C157, 28 days): 0.05% maximum
 - f. Maximum water to cementitious materials ration: 0.45
 - g. No chlorides shall be intentionally introduced into mix,
 - h. Suitable for vertical surfaces.
 - i. Submit mix design for Engineer approval, including strength and mix history
 - 2. Proprietary self-consolidating concrete or cementitious mortar with 3/8-inch aggregate added, per manufacturer's recommendations:
 - a. Sikacrete 211 SCC Plus supplied by Sika Corporation
 - b. MasterEmaco S440 Repair Mortar; BASF Construction Chemicals, LLC - Building Systems
 - c. Or approved equal.
- C. Shallow-depth repair on vertical surfaces using cementitious, polymer- or silica-fume modified trowel-applied repair mortar, 3/8-inch to 3/4-inch.
 - 1. SikaTop 123 Plus, manufactured by Sika Corporation.
 - 2. MasterEmaco N 400, manufactured by BASF.
 - 3. Approved equal; minimum performance requirements:
 - a. Slant shear bond strength (ASTM C882, 28 days): 2,700 psi
 - b. Shrinkage (ASTM C157, 28 days): 0.035% maximum
 - c. Suitable for horizontal, vertical, and overhead surfaces.
- D. Aggregate for Extending Repair Mortar: Where recommended by the repair material manufacturer, the repair material may be extended with clean 3/8-inch pea gravel conforming to ASTM C33, at the rate recommended by the repair mortar manufacturer.

2.2 FORMWORK

- A. Forms for surfaces exposed to view shall be constructed of a new 1-inch, Plyform Grade B-B EXT-APA Class 1 exterior plywood of concrete-form grade or equal. Plywood may be reused for formed surfaces exposed to view as long as it is in good condition. Plywood may be 3/4-inch or less provided it can maintain position and shape and meet the deflection criteria in ACI 347 during placement of the concrete.
- B. Forms are to provide finish-to-match existing finish and profile of adjacent material.
- C. Form-Release Agent: Commercially-formulated form-release agent that will not bond with, stain, or adversely affect the concrete surface and will not impair subsequent treatments of the concrete surface
 - 1. Formulate form-release agent with rust inhibitor for steel, form-facing materials.

2.3 OTHER MATERIALS

- A. Curing Materials:
 - 1. Moisture-Retaining Cover: ASTM C171, white burlap-polyethylene sheet.
 - 2. Water: Potable.
- B. Reinforcing materials: In accordance with City of Austin Specification Item No. 406S
- C. Stainless Steel Wire: 16 Gauge Stainless Steel Type 316.
- D. Stainless Steel Anchors:
 - 1. 3/8-inch diameter by 3-inch long, Hilti KWIK Bolt 3 SS 316,
 - 2. Helifix PatchPin SS 316 4-inch long
 - 3. Approved equal

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine conditions where concrete repairs are to be performed. Notify Engineer of conditions or details not addressed by Construction Drawings or specifications, as outlined in the Scope of Work, and wait for further direction.
- B. No free surface moisture may be present either prior to or during patching work.
- C. Beginning of Work constitutes acceptance of conditions and substrates.

3.2 CONCRETE REMOVAL AND SURFACE PREPARATION

- A. Perform concrete removal and surface preparation in accordance with Section 02 41 00.

3.3 REINFORCEMENT PREPARATION

- A. Position wire reinforcement centered within repair, sufficient for full encasement by repair material.

- B. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcement with bar supports to maintain minimum concrete cover. Do not tack weld crossing reinforcing bars.
- C. Do not weld reinforcement unless specifically approved by the Engineer.

3.4 EMBEDDED ITEMS

- A. Place and secure items to be embedded in concrete.
- B. Set wire ties with ends directed into concrete, not toward exposed concrete surfaces.

3.5 FORMWORK

- A. At repair locations on vertical surfaces, form removal areas leaving openings for placement or pumping of repair material.
- B. Construct formwork so final appearance and shape of repair material matches adjacent existing concrete, and so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of TCNA Handbook for Ceramic, Glass, and Stone Tile Installation.
 - 1. Limit abrupt concrete surface irregularities to 1/32".
 - 2. Limit variation from plumb to 1/8" in 10'.
 - 3. Provide 3/4-inch chamfer at exterior corners and edges of permanently exposed concrete.
 - 4. Construct forms tight enough to prevent loss of concrete mortar.
 - 5. Where feasible, construct forms to provide minimum 2-inch cover. Provide 45 degree chamfer at build out if required as shown in the drawings.
- C. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush or wrecking plates where stripping may damage cast-concrete surfaces. Do not allow metal tools to come into contact with concrete surfaces. Kerf wood inserts for forming keyways, reglets, and recesses, for easy removal.
- D. Arrange form ties such that metal is at least 2 inch below concrete surfaces exposed to weather. Lugs, cones, washers, and other devices shall not leave depression or hole larger than 2 inches in diameter.
- E. Provide top forms for inclined surfaces steeper than 1.5 horizontal to 1 vertical.
- F. Coat contact surfaces of forms with form-release agent, according to manufacturer's written instructions, before placing reinforcement.
- G. Provide temporary openings for cleanouts, air-relief holes, and inspection ports, as required. Close openings with panels tightly fitted to forms and securely braced to prevent loss of concrete mortar. Locate temporary openings in forms at inconspicuous locations. Repair all air-relief holes.
- H. Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and other debris immediately before placing concrete.
- I. Retighten forms and bracing before placing concrete to prevent mortar leaks and maintain proper alignment.

- J. Removing and Reusing Forms: Formwork, for sides of beams, walls, columns, and similar parts of Work, that does not support weight of concrete, may be removed after cumulatively curing at not less than 50 degree F for 48 hours after placing concrete, provided concrete is hard enough not to be damaged by form-removal operations and provided curing and protection operations are maintained.
1. Leave formwork for beam soffits, joists, slabs, and other structural elements that supports weight of concrete in place until concrete has achieved at least 75 percent of 28-day design compressive strength.
 2. Clean and repair surfaces of forms to be reused in Work. Do not use split, frayed, delaminated, or otherwise damaged form-facing material, or patched forms, for exposed surfaces.

3.6 MIXING AND PLACEMENT

A. Concrete Mixing:

1. Measure, batch, and mix concrete materials according to manufacturer's written instructions and ASTM C94/C94M.
2. Use measuring devices that are clearly marked to show gradations. Use separate measuring devices for each component to prevent cross-contamination.
3. Mix materials to achieve a uniform, lump-free consistency.
4. Mix only enough material that can be used within 30 minutes, or in accordance with the manufacturer's recommendations.

B. Concrete Placement, General:

1. Prior to placement of repair mortar, surfaces shall be saturated with clean water. Concrete substrate should be in a saturated, surface dry (SSD) condition with no standing water, minimum of two (2) hours prior to placing repair material.
2. Place repair mortar in prepared areas in strict accordance with manufacturer's recommendations for initial substrate scrubbing, troweling, inter-coat scoring, and finishing.

C. Concrete Placement, Vertical-Surface Repairs:

1. Place concrete as near as possible to its final position to avoid segregation due to re-handling or flowing.
2. Avoid or minimize vertical fall. Do not allow concrete to fall vertical distance greater than 4 feet from point of discharge to point of deposit.
3. Place concrete at rate so that concrete is plastic and flows readily into corners of forms and into spaces around reinforcing bars.
4. Consolidate concrete in accordance with material manufacturer recommendations.
 - a. Do not use vibrators to transport concrete.
 - b. Insert and withdraw vibrators vertically at uniformly spaced locations no farther apart than visible effectiveness of vibrator.
 - c. If internal vibrators will not fit in formed repair void, external vibration of forms is permitted.

D. Cold-Weather Placement

1. Protect concrete work from physical damage or reduced strength due to frost, freezing, or low temperatures. Comply with ACI 306R and as follows.
 - a. When air temperature has fallen or is expected to fall below 40 degrees F, uniformly heat water and aggregates before mixing to obtain concrete mixture temperature of not less than 50 degrees F and not more than 80 degrees F at point of placement.

Mix water and aggregates together before adding cement. Do not add cement if temperature of water/aggregate mixture exceeds 70 degrees F.

- b. Do not use frozen materials or materials containing ice or snow.
- c. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators, unless otherwise specified and approved in mix design.

E. Hot-Weather Placement

- 1. Protect concrete work from physical damage or reduced strength due to rapid evaporation or overheating of concrete. Refer to Fig. 2.1.5 in ACI 305R for hot-weather conditions that may adversely affect concrete placement, finishing, and curing. Do not allow temperature of concrete at time of placement to exceed 85 degrees F. When hot-weather conditions exist, use 1 or more of following procedures:
 - a. Place concrete at night or early in morning.
 - b. Cool ingredients before mixing to maintain concrete temperature below 85 degrees F at time of placement. Chilled mixing water or chopped ice may be used to control temperature; include water equivalent of ice in mixing water quantity. Use liquid nitrogen to cool concrete at Concrete Contractor's option.
 - c. Cover steel reinforcement with water-soaked burlap so steel temperature will not exceed ambient air temperature immediately before embedding in concrete.
 - d. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade moisture uniform without standing water, soft spots, or dry areas.
 - e. Provide windbreaks or sunshades, or both.
 - f. Cool pump pipelines by shading, running cool water over, or other means as necessary.

3.7 FINISHING AND CURING

- A. Perform curing of repair areas in accordance with repair material manufacturer's recommendations.
- B. Moist cure all surfaces with wet burlap for a minimum of three days.
- C. Maintain concrete above 55 degree F and for at least 72 hours after placing.
- D. Finishing Formed Surfaces:
 - 1. Rough-Formed Finish: As-cast concrete texture imparted by form-facing material with tie holes and defective areas addressed. All fins, runs, drips or projections shall be removed from surfaces which remain exposed. Form marks and chamfer edges shall be smoothed by grinding and/or dry rubbing. Remove fins and other projections exceeding 1/4 inch.
 - 2. Unformed Surface: Begin curing immediately after finishing concrete. Use water-saturated, moisture-retaining cover, or other approved.
 - a. Place cover in widest practicable width, with sides and ends lapped at least 12 inches.
 - b. Seal sides and ends of cover by holding down with soil, concrete pieces, or some other weight, or by using waterproof tape or adhesive.
 - c. Immediately repair holes or tears in cover during curing period using cover material and waterproof tape.
 - d. Re-wet concrete surface at least twice daily as necessary to ensure that surface remains moist.
 - 3. Formed Surfaces:
 - a. Maintain form surfaces in moist condition.

- b. Moist cure concrete after forms are stripped to achieve 7 day total cure period.
- E. Stripping of Forms:
 - 1. Strip forms no earlier than 48 hours after concrete is placed. When forms are striped, continue wet-cure as described herein.

3.8 SHALLOW-DEPTH REPAIR PROCEDURE

- A. Wet substrate thoroughly and then remove standing water.
- B. Place shallow-depth repair materials by troweling toward edges of repair area to force intimate contact with edge surfaces. For large patches, fill edges first and then work toward center, always troweling toward edges of patch.
- C. For vertical patching, place material in lifts of not more than 2 inches nor less than 1/4 inch. Do not feather edge.
- D. For overhead patching, place material in lifts of not more than 1 inch nor less than 1/8 inch. Do not feather edge.
- E. Where multiple lifts are used, score surface of lifts to provide a rough surface for application of subsequent lifts. Allow each lift to reach final set before placing subsequent lifts.
- F. Allow surfaces of lifts that are to remain exposed to become firm and then finish to a smooth surface with a wood or sponge float.
- G. Perform curing of repair areas in accordance with repair material manufacturer's recommendations.

3.9 DEFECTIVE CONCRETE REPAIR

- A. Repair defective areas designated by the Engineer. Remove and replace concrete that cannot be repaired to satisfaction of the Engineer at no additional cost to Owner.
- B. Surface defects on exposed surfaces include:
 - 1. Voids, such as spalls, air bubbles, honeycomb, rock pockets, and form-tie voids, more than 1/2 inch in any dimension in solid concrete but not less than 1 inch deep.
 - 2. Cracks at least 1/16 inch wide or cracks that penetrate through section, notify the Engineer.
 - 3. Fins and other projections exceeding 1/2 inch.
 - 4. High or low spots in repaired areas that create areas of standing water that are at least 1/2 inch deep and at least 9 square feet in area.
- C. Delaminations or otherwise unsound repairs: repair defects on concealed surfaces that affect concrete's durability and structural performance as determined by the Engineer.
- D. As soon as possible, saw-cut and remove all spalls, air bubbles, honeycombs, rock pockets, and voids. Make edges of cuts perpendicular to concrete surface. Clean voids and fill with repair mortar according to manufacturer's recommendations. Use polymer- or silica fume-modified, cementitious, non-sag mortar that is specifically intended for this application.
- E. After concrete has gained sufficient strength to be unaffected by grinding, grind off fins, other projections, and high areas.

- F. Repair materials and installation not specified above may be used if approved by Engineer.

3.10 CLEANING

- A. Remove and legally dispose of concrete and steel debris, sandblast materials, and excess materials.
- B. All areas of the parking garage, and the surrounding site shall be left broom-clean at the end of each working day.

3.11 FIELD QUALITY CONTROL

- A. Field Quality Control / Quality Assurance Testing:
1. Sampling of materials shall be in accordance with ASTM C172.
 - a. When pumping, the repair material will be directed to a wheel barrow or other suitable means for testing agency to acquire sufficient materials for testing and casting all specimens (approximately 1-1/2 cubic feet). Material collected after pumping.
 - b. Collect first test sample at beginning of placement, and subsequent samples at frequency noted in Table 1 below.
 - c. Samples from proprietary repair material shall be taken from the second batch prepared. If two or more mixers are used, ensure that samples are obtained from mixers in an alternating fashion.
 2. Test Sample Set:
 - a. Four 4-inch-diameter by 8-inch-long cylinders will be made and cured in accordance with ASTM C31/C31M. The number of required sets shall be in accordance with the Table 1 below.
 - b. Slump in accordance with ASTM C143/C143M.
 - c. For self-consolidating concrete: slump flow in accordance with ASTM C1611/C1611M. Note visual stability index.
 - d. Air content in accordance with ASTM C173 or ASTM C231
 - e. Concrete and air temperature in accordance with ASTM C1064/C1064M.
 3. Cylinders will be cured under field conditions for 1 day; then transported to testing laboratory and cured for remaining period until testing.
 4. For each test sample set, 2 cylinders at 7 days and 2 cylinders at 28 days. Compression tests will be performed in accordance with ASTM C39/C39M and strength test result shall be an average of two cylinders cast from same sample and tested at a given age.
 5. Test reports for each test sample will include following information:
 - a. Specimen number.
 - b. Portion of structure represented by material tested.
 - c. Date cast.
 - d. Date tested.
 - e. Slump or slump flow and visual stability index.
 - f. Air content.
 - g. Concrete and air temperature.
 - h. Individual cylinder strength and type of failure.
 - i. Repair material strength on product data sheet.
 - j. Notice if test indicates repair material does not conform with following criteria:

6. Testing frequency shall be as outlined below:

Table 1: QA/QC Material Testing Procedures

QA Testing	QC Testing				
Compression (ASTM C39)	Slump (ASTM C143) or Slump flow (ASTM C1611)	Unit Weight (ASTM C138)	Air Content (ASTM C173 or ASTM C231)	Concrete and Air Temp (ASTM C1064)	Additional Items (1/placement or material type)
1 set / 75 cu. ft. 6 cylinders (2 - 7 days, 2 - 28 days)	1 test / placement 1 test / material	1 test/ 75 cu. ft. 1 test / material	1/75 cu. ft. 1/material	1 test /placement 1 test / material	Lot number Powder/water temp Weight of bag Mix time

- B. Architect/Engineer or Owner's Representative may perform destructive and non-destructive testing to detect voids or other defects in repair. Owner will pay for initial testing. If voids or other defects are found, Contractor will pay for subsequent tests.
- C. Pull-off Testing: ASTM C1583/C1583M, ICRI Guide for Using In-Situ Tensile Pull-off Tests to Evaluate Bond of Concrete Surface Materials.
1. After repairs have cured, perform pull-off tests at one test site for every day of material placed.
 - a. Perform three core pull-off tests at each test site.
 - b. Drill core holes for tests; patch core holes at completion of tests.
 2. Construction is acceptable if the average of the pull-off strengths meets the requirements and no individual test value is less than 175 pounds per square inch.
 3. If tests on installed replacements do not meet the requirements, remove and replace non-conforming areas of shotcrete, determined by Architect/Engineer, at no cost to Owner.
- D. Sound new repair material surfaces by hammer tapping or other means after the repair has set and repair delaminated areas.

END OF SECTION

SECTION 03 01 35

SHOTCRETE REPAIR

PART 1 GENERAL

1.1 SUMMARY

- A. This work shall consist of providing the necessary labor, materials, equipment and supervision to place, finish and cure shotcrete which is wet-mix applied at properly prepared surfaces, namely repair at existing structural concrete walls. Reference Section 03 01 30 for alternate specifications for structural concrete wall repair utilizing self-consolidating concrete. Reference Section 432S for repair of concrete sidewalks.
- B. Related Work
 - 1. Section 403S - Concrete for Structures
 - 2. Section 02 41 00 - Selective Demolition

1.2 REFERENCES

- A. Definitions:
 - 1. Shotcrete: Mortar or concrete pneumatically projected onto a surface at high velocity.
 - 2. Wet-Mix Shotcrete: Shotcrete with ingredients, including water, mixed before introduction into delivery hose. Accelerator, if used, is usually added at nozzle.
 - 3. Dry-Mix Shotcrete: Shotcrete with most of water added at nozzle.
 - 4. Rebound: Shotcrete material which ricochets off receiving surface.
- B. Reference Standards: Latest edition as of Specification date.
 - 1. American Concrete Institute (ACI).
 - a. 305R: Guide to Hot Weather Concreting.
 - b. 306R: Guide to Cold Weather Concreting.
 - c. 506.2: Specification for Shotcrete.
 - 2. ASTM International.
 - a. A820/A820M: Standard Specification for Steel Fibers for Fiber-Reinforced Concrete.
 - b. C33/C33M: Standard Specification for Concrete Aggregates.
 - c. C94/C94M: Standard Specification for Ready-Mixed Concrete.
 - d. C150/C150M: Standard Specification for Portland Cement.
 - e. C171: Standard Specification for Sheet Materials for Curing Concrete.
 - f. C309: Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete.
 - g. C1064/C1064M: Standard Test Method for Temperature of Freshly Mixed Hydraulic-Cement Concrete.
 - h. C1077: Standard Practice for Agencies Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Testing Agency Evaluation.
 - i. C1116/C1116M: Standard Specification for Fiber-Reinforced Concrete.
 - j. C1140/C1140M: Standard Practice for Preparing and Testing Specimens from Shotcrete Test Panels.
 - k. C1141/C1141M: Standard Specification for Admixtures for Shotcrete.
 - l. C1218/C1218M: Standard Test Method for Water-Soluble Chloride in Mortar and Concrete.

- m. C1240: Standard Specification for Silica Fume Used in Cementitious Mixtures.
 - n. C1436: Standard Specification for Materials for Shotcrete.
 - o. C1583/C1583M: Standard Test Method for Tensile Strength of Concrete Surfaces and the Bond Strength or Tensile Strength of Concrete Repair and Overlay Materials by Direct Tension (Pull-off Method).
 - p. C1604/C1604M: Standard Test Method for Obtaining and Testing Drilled Cores of Shotcrete.
3. International Concrete Repair Institute (ICRI):
- a. Guide for Using In-Situ Tensile Pull-off Tests to Evaluate Bond of Concrete Surface Materials.

1.3 SUBMITTALS

- A. Product Data: Manufacturer's literature and technical data, including VOC contents, for admixtures, curing compounds, and other products.
- 1. Include Safety Data Sheets (SDS) for information only; safety restrictions are sole responsibility of Contractor.
- B. Design Mixes: For each shotcrete mix, include:
- 1. Statement of intended use for mix and mix identification designation.
 - 2. Sources and proportion of materials, including admixtures added at nozzle.
 - 3. Mill tests and certification for cement. Certification for silica fume.
 - 4. Sieve analysis for fine and coarse aggregate.
 - 5. Test results for deleterious substances in aggregates and potential aggregate reactivity.
 - 6. Mixing and placement method.
 - 7. Air content during laboratory tests. For wet-mix shotcrete, include air content before shooting and expected air content after shooting.
 - 8. Seven- and 28-day laboratory compression test results. Minimum three cores from test panels at each test age.

1.4 QUALITY ASSURANCE

- A. Shotcrete Subcontractor Qualifications: Experienced firm that has successfully completed shotcrete work similar in material, design, and extent to that indicated for the Project. Must have successful construction with specified materials in local area in use for minimum of three years.
- 1. Employ foreman with minimum five years of experience as foreman on similar projects and as certified shotcrete nozzleman, who is fluent in English, to be on Site at all times during the shotcrete Work. Do not change foremen during the course of the Project except for reasons beyond the control of Subcontractor; inform Architect/Engineer in advance of any changes.
 - 2. Employ nozzlemen with:
 - a. ACI certification for shotcrete procedure and repair positions to be used.
 - b. Minimum three years of experience on similar projects.
 - c. Acceptable visual grading on mockup test panels.
 - 3. Employ equipment operators and blow men with minimum six months of apprenticeship on similar projects.
- B. Test Panels: Before installing shotcrete, produce test panels and test shotcrete specimens in accordance with ASTM C1140/C1140M, to verify quality of installed shotcrete, to demonstrate aesthetic effects, and to set quality standard for installation.

1. Produce test panels by each nozzleman for each design mix, shooting orientation, and required finish, using equipment and personnel selected for job.
2. Test panels shall be minimum 24 inches by 24 inches by 3 1/2 inches and shall include reinforcement similar to that in members being repaired.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle materials according to manufacturer's recommendations and in such a manner as to prevent damage to materials or structure.
- B. Deliver materials to Site in original, unopened bags and containers with seals unbroken, labeled with manufacturer's name, product brand name and type, date of manufacture, lot number, and directions for storing and mixing with other components.
- C. Keep materials dry and do not allow materials to be exposed to moisture during transportation, storage, handling, or installation. Reject and remove from Site new materials which exhibit evidence of moisture during application, or have been exposed to moisture.
- D. Store materials in original, undamaged bags or containers in clean, dry, protected location on raised platforms with weather-protective coverings, within temperature range required by manufacturer. Manufacturer's standard packaging and covering is not considered adequate weather protection.
- E. Store aggregate stockpiles in manner to avoid segregation or contamination with foreign matter or other aggregates. Store away from normal drainage paths and cover with canvas or plastic if necessary to keep dry.
- F. Limit stored materials on structures to safe loading capacity of structure at time materials are stored, and to avoid permanent deck deflection.
- G. Conspicuously mark damaged or opened bags or containers or bags or containers with contaminated materials, and remove from Site as soon as possible.

1.6 PROJECT CONDITIONS

- A. Verify existing dimensions and details prior to start of shotcrete Work. Notify Architect/Engineer of conditions found to be different than those indicated in the Contract Documents. Architect/Engineer will review situation and inform Contractor of changes.
- B. Comply with Owner's limitations and restrictions for Site use and accessibility.
- C. Handle and install materials in strict accordance with safety requirements required by manufacturer; Safety Data Sheets (SDS); and local, state, and federal rules and regulations. Maintain Safety Data Sheets (SDS) with materials in storage area and available for ready reference on Site.
- D. Maintain adequate ventilation during preparation and placement of shotcrete.

1.7 CHANGES IN WORK

- A. During concrete repair Work, existing conditions may be encountered which are not known or are at variance with Project Documents. Such conditions may interfere with Work and may

consist of damage or deterioration of substrate or surrounding materials that could jeopardize integrity or performance of Work.

- B. Notify the Engineer of conditions that may interfere with proper execution of Work prior to proceeding with Work.

PART 2 PRODUCTS

2.1 SHOTCRETE MATERIALS

- A. Source Limitations: Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant, each aggregate from one source, and admixtures through one source from single manufacturer.
- B. Portland Cement: ASTM C150/C150M, Type I or II. Use only one brand and type of cement for Project.
- C. Silica Fume: ASTM C1240, amorphous silica.
- D. Normal-Weight Aggregates: ASTM C33/C33M; from single source with documented record of at least ten years of satisfactory service using similar aggregates and cementitious materials in similar applications and service conditions; free of salt and organic impurities; with gradation conforming to ASTM C1436, Grading No. 1.
- E. Synthetic Fibers: ASTM C1116/C1116M, Type III; fibrillated polypropylene fibers engineered and designed for use in shotcrete; not less than 1 inch long.
- F. Additive: Gun-Rite HP, manufactured by J. E. Tomes & Associates, Blue Island, IL, or approved equal.
- G. Water: Potable.

2.2 ADMIXTURES

- A. General: C1141/C1141M, Class A or B; subject to acceptance by Architect/Engineer.
 - 1. Do not use calcium chloride or admixtures that contain more than 0.1 percent water-soluble chloride ions by mass of cementitious material.
 - 2. Certify chloride contents of admixtures and compatibility of admixtures with each other and with other cementitious materials.

2.3 CURING MATERIALS

- A. Moisture-Retaining Cover: ASTM C171, white burlap-polyethylene sheet.
- B. Water: Potable.
- C. Membrane-Forming Curing Compound: ASTM C309, Type 1-D (clear or translucent with fugitive dye) with VOCs less than 350 g/L and legal limits. Silicate materials shall not be used.

2.4 SHOTCRETE MIXES

- A. Prepare design mixes for each type and strength of shotcrete, determined by field test data and according to ACI 211.1 and ACI 301. Proportion mixtures as follows:
 - 1. Minimum 28-day Compressive Strength: 5,000 pounds per square inch (psi) for sawn 3-inch cube specimens.
 - 2. Minimum Seven-Day Compressive Strength: 3,800 pounds per square inch (psi) for sawn 3-inch cube specimens.
 - 3. Gun-Rite HP at dosage recommended by manufacturer.
 - 4. Bond Strength: ASTM C1583/1583M, ICRI Guide for Using In-Situ Tensile Pull-off Tests to Evaluate Bond of Concrete Surface Materials; 175 pounds per square inch minimum, failure away from bond line; unless properly prepared substrate precludes achieving minimum strength.
- B. Design Mix Adjustments: Propose adjustments to design mix as necessary when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions with shotcrete Subcontractor for compliance with requirements and other conditions affecting the installation or performance of the shotcrete Work.
 - 1. Ensure that work done by other trades is complete and ready for shotcrete Work.
 - 2. Verify that areas and conditions under which shotcrete Work is to be performed permit proper and timely completion of Work.
 - 3. Notify Architect/Engineer in writing of conditions which may adversely affect the installation or performance of shotcrete Work and recommend corrections.
 - 4. Do not proceed with shotcrete Work until adverse conditions have been corrected and reviewed by Architect/Engineer.
 - 5. Commencing shotcrete Work constitutes acceptance of Work surfaces and conditions.

3.2 PROTECTION

- A. Take precautions to ensure the safety of people, including building users, passers-by, and workmen, and animals, and protection of property, including adjacent building elements, landscaping, and motor vehicles.
- B. Prevent construction debris and other materials from coming into contact with pedestrians, motor vehicles, landscaping, buildings, and other surfaces that could be harmed by such contact.
- C. Protect paving and sidewalks, and adjacent building areas from mechanical damage due to scaffolding and other equipment.
- D. Limit access to Work areas.
- E. Erect temporary protective canopies, as necessary, over walkways and at points of pedestrian and vehicular access that must remain in service during Work.
- F. Assume responsibility for injury to persons or damage to property due to Work, and remedy at no cost to Owner.

3.3 SHOTCRETE EQUIPMENT

- A. Mixing Equipment: Capable of thoroughly mixing shotcrete materials in sufficient quantities to maintain continuous placement.
- B. Wet-Mix Delivery Equipment:
 - 1. Capable of discharging aggregate-cement-water mixture accurately, uniformly, and continuously at velocities that apply materials to prepared surface with minimum rebound and maximum adherence and density.
 - 2. Provide uniform, steady supply of clean, compressed air to maintain constant nozzle velocity while simultaneously operating blow pipe for cleaning away rebound.
 - 3. Use pump with metering equipment to monitor and control rate of admixtures added at nozzle.

3.4 PREPARATION

- A. Prepare exposed concrete and steel surfaces to receive shotcrete as specified in Section 03 01 30.
- B. Supply and install epoxy-grouted dowels as specified in Section 03 01 30.

3.5 BATCHING AND MIXING SHOTCRETE

- A. Site Mixing: Measure, batch, and mix shotcrete materials and shotcrete according to ASTM C94/C94M.
 - 1. Develop batching and mixing operations so that quality control is assured.
 - 2. Designate one or two individuals to batch and mix shotcrete. Fully instruct these individuals on batching and mixing procedures. No other persons shall batch or mix shotcrete without prior notification to Architect/Engineer.
 - 3. Maintain accurate mix proportions. Batch materials by weight on the basis of whole bags of cement. Maintain a calibrated scale at the Site during shotcrete placement operations. Batching by volume is permitted if the weight-volume relationship for each material is verified on a daily basis, and aggregate moisture content is measured at least once daily and aggregate volume is adjusted for bulking.
 - 4. Incorporate admixtures into mix in a manner recommended by the manufacturer and approved by Architect/Engineer. Measure with accuracy of +/-3 percent. Add each admixture separately.
 - 5. Combine and mix ingredients to uniform consistency.
 - 6. Mix shotcrete materials in an appropriate drum-type batch machine mixer.
 - a. For a mixer capacity of 1 cubic yard or smaller, mix at least 1 1/2 minutes, but not more than five minutes after ingredients are in mixer.
 - b. For a mixer capacity larger than 1 cubic yard, increase mixing time by 15 seconds for each additional cubic yard.
 - c. Provide a sufficient number of mixers, including reserve mixers, so that shotcrete placement operations will proceed uninterrupted and each replacement is completed before shotcrete achieves initial set.

3.6 SHOTCRETE PLACEMENT

- A. Areas prepared for shotcrete repair will be reviewed and approved by Architect/Engineer prior to shotcrete placement. Notify Architect/Engineer at least 48 hours in advance of shotcrete placement.

- B. Install protective coverings and other means to protect adjacent surfaces from rebound and overspray, and from impact from nozzle stream.
- C. Provide a safe, stable platform that permits the nozzleman unobstructed access to and clear visibility of shotcreting area. Provide supplemental lighting as necessary.
- D. Wet and damp dry existing surfaces to obtain saturated-surface-dry condition immediately before placing shotcrete to prevent excessive moisture absorption from shotcrete and improve bond. Layer surfaces should be saturated-surface-dry before placing subsequent layers.
- E. Apply shotcrete to completely fill removal cavities with dense, sound shotcrete.
 - 1. Apply within 90 minutes after batching. Do not place shotcrete if drying or stiffening of the mix takes place prior to delivery to the nozzle.
 - 2. Apply first in corners, recesses, and other areas where rebound and overspray cannot easily escape.
 - 3. Hold nozzle approximately perpendicular to receiving surface. At corners, direct nozzle at approximately 45-degree angle or bisect corner angle.
 - 4. Maintain reinforcement in position during shotcreting. Place shotcrete to completely encase reinforcement and other embedded items. Maintain steel reinforcement free of overspray and prevent buildup against front face during shotcreting.
 - 5. Deposit shotcrete in the minimum number of layers required to build up the full thickness of the shotcrete without sagging, sloughing, or dislodging. Cut out and replace shotcrete that sags or sloughs.
 - a. Broom or scrape the shotcrete with a trowel once the lift has reached initial set, to provide a roughened surface and to remove rebound and overspray.
 - b. Do not apply curing compound or other bond breaking material to surfaces that will receive an additional layer of shotcrete.
 - c. Do not place subsequent lifts until the previous lift of shotcrete is capable of supporting new shotcrete.
 - d. Before placing a subsequent layer, sound the layer surface with a hammer and remove hollow areas resulting from rebound pockets or lack of bond.
 - e. Do not allow shotcrete that is to receive an additional layer to reach final set.
 - f. If the shotcrete surface to receive additional shotcrete reaches final set, delay surface preparation for at least 24 hours, at which time the surface shall be prepared by sandblasting in accordance with Section 03 01 30.
 - 6. Remove hardened overspray, rebound, and laitance from shotcrete surfaces to receive additional layers of shotcrete; dampen surfaces before shotcreting.
 - 7. Apply shotcrete slightly above the finished edges of the adjacent concrete.
 - 8. If there is delay between applying layers or before commencing finishing operations, temporarily cover shotcrete with clear or white polyethylene film or similar plastic sheeting with a minimum thickness of 4 mils, to retard early drying.
- F. Do not disturb shotcrete surfaces before beginning finishing operations.
- G. Environmental Conditions:
 - 1. Cold-Weather Shotcreting: Protect shotcrete from physical damage or reduced strength caused by frost, freezing, or low temperatures, according to ACI 306R and as follows:
 - a. Do not use frozen materials or materials containing ice or snow.
 - b. Do not place shotcrete on frozen surfaces or surfaces containing frozen materials.
 - c. Do not use calcium chloride, salt, or other materials containing antifreeze agents.

- d. Discontinue shotcreting when the ambient temperature is 40 degrees F and falling. Uniformly heat water and aggregates before mixing to obtain a shotcrete shooting temperature of not less than 50 degrees F and not more than 90 degrees F.
2. Hot-Weather Shotcreting: Protect shotcrete from physical damage or reduced strength caused by hot-weather conditions or high temperatures, according to ACI 305R and as follows:
 - a. Cool ingredients before mixing to maintain a shotcrete temperature at the time of placement below 90 degrees F.
 - b. Reduce the temperature of the reinforcing steel and receiving surfaces below 100 degrees F before shotcreting.
3. Do not apply shotcrete during periods of high wind which could interfere with the shotcrete stream, unless suitable enclosures or wind breaks are installed.

3.7 SURFACE FINISHES

- A. Screed Finish: After shotcrete has stiffened to the point where the surface will not pull or crack when screeded, trim excess material with a rod or trowel to true line.
- B. Screed so final appearance and shape of concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of TCNA Handbook for Ceramic, Glass, and Stone Tile Installation.
 1. Limit abrupt shotcrete surface irregularities to 1/32".
 2. Limit variation from plumb to 1/8" in 10'.
 3. Provide 3/4-inch chamfer at exterior corners and edges of permanently exposed concrete.

3.8 SHOTCRETE CURING

- A. General: Protect freshly placed shotcrete from premature drying and excessive cold or hot temperatures. Maintain above 55 degrees F and in a moist condition for at least seven days after placing.
- B. Unformed Vertical and Overhead Surfaces: As soon as free water has disappeared from shotcrete surface, apply a curing compound uniformly in a continuous operation by power spray or roller according to the manufacturer's written instructions and at twice the recommended coverage rate. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain the continuity of the coating and repair damage during curing period.
- C. Protect concrete from falling below 55 degrees F with insulating blankets or heated enclosures, vented to the outside.

3.9 REPAIR OF DEFECTIVE SHOTCRETE

- A. Defective Shotcrete:
 1. Does not pass specified tests;
 2. Is delaminated;
 3. Exhibits laminations, voids, or sand/rock pockets exceeding limits for specified core grade of shotcrete;
 4. Contains cracks or crazing in excess of 0.01 inches wide or that penetrate to reinforcement; or
 5. Is considered defective by Architect/Engineer.
- B. Remove and replace defective shotcrete at no cost to Owner.

1. Remove unsound and loose materials, and contaminants that may inhibit bond of shotcrete repairs.
 2. Chip or scarify areas to be repaired to the extent necessary to provide a sound substrate and to the minimum specified replacement depth.
 3. Cut or chip edges square and 1/2 inch deep at the perimeter of the removal area, tapering the remaining shoulder at 1:1 slope into cavity to eliminate square shoulders.
 4. Prepared areas will be reviewed and approved by Architect/Engineer prior to placement of repair material. Do not proceed with placement of repair material until prepared areas have been approved by Architect/Engineer.
 5. Dampen surfaces and apply repair material. Use one of the following or approved equal:
 - a. Shotcrete: Place, finish, and cure per this Section.
 - b. Other repair materials: per Section 03 01 30.
 6. Engage Owner's testing agency to perform additional tests on shotcrete repairs in accordance with Paragraph 3.8. Pay costs associated with testing shotcrete repairs.
- C. Repair core holes from in-place testing with polymer- or silica fume-modified, cementitious, non-sag mortar.

3.10 FIELD QUALITY CONTROL

- A. Owner will engage qualified independent testing agency, conforming to the requirements of ASTM C1077 and acceptable to Architect/Engineer, to perform quality control testing and inspections.
- B. Test Panels: Produce test panels and test shotcrete specimens in accordance with ASTM C1140, to monitor the quality of the shotcrete.
1. Produce one test panel daily by each nozzleman for each design mix for each shooting orientation. Clearly label test panels with date placed, nozzleman, and portion of structure represented.
 2. Test panels shall be minimum 24 inches by 24 inches by 3 1/2 inches and shall include reinforcement similar to that in members being repaired.
 3. Cover and tightly wrap test panels with plastic, or store in moist room, until testing.
 4. Testing agency will obtain three specimens for compression testing and three specimens for visual grading from each test panel immediately prior to testing. Specimens will be cores, minimum 1 1/2 inch diameter by 3 inches long, or 3-inch-minimum cubes. Specimens for compression testing shall not include reinforcement, and specimens for visual grading shall include reinforcement.
 - a. Test three specimens for compressive strength at seven days, in accordance with ASTM C42/C42M.
 - 1) Strength is acceptable if mean of seven-day test results is at least the specified compressive strength with no individual test result more than 500 pounds per square inch less than the specified compressive strength.
 - 2) If compressive strength does not satisfy criteria, revise mix design and test additional test panels. Shotcrete Work represented by unacceptable test results will be rejected unless testing of specimens of in-place shotcrete is performed at 28 days and requirements are satisfied for the specified 28-day compressive strength.
 - b. Visually inspect each set of reinforced shotcrete specimens taken from the test panels and determine mean core grades according to ACI 506.2.
 - 1) Shotcrete is unacceptable if mean grade is 2.5 or more, or if grade of an individual specimen is greater than 3.

- 2) If grading is unacceptable, produce and inspect a second set of test panels. If grading of the second set of test panels is unacceptable, the nozzleman shall not be permitted to shoot on Project.
- C. Shotcrete Temperature: ASTM C1064/C1064M; one test for each set of compressive-strength specimens, and one test hourly when air temperature is 40 degrees F and below or 80 degrees F and above.
- D. Test results shall be reported in writing to Owner's Representative, Architect/Engineer, and shotcrete Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain:
 - a. Name of testing and inspecting agency.
 - b. Project identification name.
 - c. Date of shotcrete placement.
 - d. Shotcrete mix proportions and design compressive strengths at seven and 28 days.
 - e. Specimen number and size, date tested, compressive breaking strengths and types of breaks, and visual core grades.
 - f. Statement that shotcrete test results are in accordance with Specifications.
- E. Architect/Engineer or Owner's Representative may perform destructive and non-destructive testing to detect voids in shotcrete. Owner will pay for initial testing. If substantial voids are found, Contractor will pay for subsequent tests.
- F. In-Place Shotcrete:
 1. At locations designated by Architect/Engineer, obtain set of three unreinforced cores from repair areas, visually grade cores according to ACI 506.2, and test cores for compressive strength according to ASTM C42/C42M. Do not cut steel reinforcement.
 2. If visually grading or strength results do not satisfy specification requirements, pay for sampling and testing and replace shotcrete represented by cores.
- G. Pull-off Testing: ASTM C1583/C1583M, ICRI Guide for Using In-Situ Tensile Pull-off Tests to Evaluate Bond of Concrete Surface Materials.
 1. After shotcrete replacements have cured, perform pull-off tests at one test site for every day of shotcrete placed.
 - a. Perform three core pull-off tests at each test site.
 - b. Drill core holes for tests; patch core holes at completion of tests.
 2. Construction is acceptable if the average of the pull-off strengths meets the requirements and no individual test value is less than 150 pounds per square inch.
 3. If tests on installed replacements do not meet the requirements, remove and replace non-conforming areas of shotcrete, determined by Architect/Engineer, at no cost to Owner.
- H. Sound new shotcrete surfaces by hammer tapping or other means after the shotcrete has set and repair delaminated areas.

3.11 CLEANING

- A. After completing shotcrete Work:
 1. Clean soiling from adjacent surfaces. Exercise care to avoid scratching or damage to surfaces.
 2. Repair surfaces stained, marred, or otherwise damaged during shotcrete Work.
 3. Clean up rebound and overspray materials, debris, and surplus materials and remove from Site.

END OF SECTION

SECTION 07 92 00

JOINT SEALANTS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes: Surface preparation and installation of sealant in joints at glass mosaic tiling.
- B. Related Sections:
 - 1. Section 09 30 23 - Glass Mosaic Tiling

1.2 REFERENCES

- A. American Society for Testing and Materials International (ASTM)
 - 1. ASTM C920 - Standard Specification for Elastomeric Joint Sealants
 - 2. ASTM C1193 - Standard Guide for Use of Sealants
 - 3. ASTM C1248 - Standard Test Method for Staining of Porous Substrate by Joint Sealants.
 - 4. ASTM C1521 - Standard Practice for Evaluating Adhesion of Installed Weatherproofing Sealant Joints.

1.3 SUBMITTALS

- A. Product Data: Sealant manufacturer's literature including written instructions for evaluating, preparing, and treating substrate; technical data including tested physical and performance properties; and installation instructions.
 - 1. Include temperature ranges for storage and application of materials, and special cold-weather application requirements or limitations.
 - 2. SpecData sheet for substrate cleaner and substrate primer recommended by sealant manufacturer for specific substrate surface and conditions.
- B. Installer Qualifications:
 - 1. Certificate signed by sealant manufacturer, certifying that Installer complies with requirements.
 - 2. Submit evidence that Installer's *existing company* has minimum of five years continuous experience in application of specified materials. Submit list of at least five completed projects of similar scope and size.
- C. Sample Warranty: Copy of sealant manufacturer's standard warranty, stating obligations, remedies, limitations, and exclusions.
- D. Following completion of Work, submit sealant manufacturer's inspection report of completed sealant installation and completed warranty; submit completed Installer warranty.

1.4 QUALITY ASSURANCE

- A. Installer Qualifications: Qualified firm that is approved, authorized, or licensed by sealant manufacturer to install sealant and that is eligible to receive sealant manufacturer's warranty. Must have installations of specified materials in local area in use for minimum of five years.

- B. Stain Testing: Conduct stain tests according to ASTM C1248 or actual in-situ testing, on actual substrate materials with orientation and exposure that replicates finished joint conditions, to verify that sealants will not stain joint substrates.
- C. Compatibility Tests: Include sealant and sealers or coatings that may come into contact with sealant following sealant application.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to Project site in original packages with seals unbroken, labeled with sealant manufacturer's name, product brand name and type, date of manufacture, lot number, and directions for storing and mixing with other components.
- B. Keep materials dry and do not allow materials to be exposed to moisture during transportation, storage, handling, or installation. Reject and remove from Site new materials which exhibit evidence of moisture during application or which have been exposed to moisture.
- C. Store materials in original, undamaged containers in clean, dry, protected location on raised platforms with weather-protective coverings, within temperature range required by sealant manufacturer. Protect stored materials from direct sunlight. Sealant manufacturer's standard packaging and covering is **not** considered adequate weather protection.
- D. Limit stored materials on structures to safe loading of structure at time materials are stored, and to avoid permanent deck deflection.
- E. Handle materials to avoid damage.
- F. Conspicuously mark wet or damaged materials and remove from site as soon as possible.
- G. Remove and replace materials that cannot be applied within stated shelf life.

1.6 PROJECT CONDITIONS

- A. Verify existing dimensions and details prior to installation of materials. Notify the Owner's Representative of conditions found to be different than those indicated in Contract Documents. The Owner's Representative will review situation and inform Contractor and Installer of changes.
- B. Comply with Owner's limitations and restrictions for site use and accessibility.
- C. Environmental Limitations: Install sealant when existing and forecast weather conditions permit sealant to be installed according to sealant manufacturer's written instructions and warranty requirements.
 - 1. Do not install sealant when ambient or substrate temperatures are below 40 degrees F or are expected to fall below 40 degrees F in the next twelve (12) hours.
 - 2. Do not proceed with installation during inclement weather except for temporary work necessary to protect building interior and installed materials. Remove temporary work and Work that becomes moisture damaged.

1.7 CHANGES IN WORK

- A. During rehabilitation work, existing conditions may be encountered which are not known or are at a variance with drawings and specifications. Such conditions may interfere with Work and

may consist of damage or deterioration of substrate or surrounding materials or components that could jeopardize integrity or performance of new sealant.

- B. Notify the Owner's Representative of conditions that may interfere with proper execution of Work or jeopardize integrity of new sealant prior to proceeding with Work.

1.8 WARRANTY

A. Manufacturer's Warranty:

- 1. Written warranty, signed by sealant manufacturer, including
 - a. Repair or replace sealant that does not comply with requirements; that does not remain watertight; that fails in adhesion, cohesion, or general durability; or that deteriorates in manner not clearly specified by submitted sealant manufacturer's data as inherent quality of material for application indicated.
 - b. Removal and replacement with new bond breaker materials.
 - c. Labor and materials to perform warranty work.
 - d. Warranty does not include sealant deterioration or failure due to following.
 - 1) Excessive joint movement caused by structural settlement or errors attributable to design or construction, resulting in stresses in sealant exceeding sealant manufacturer's written specifications for sealant elongation or compression.
 - 2) Deterioration or failure of sealant due to failure of substrate prepared according to requirements.
 - 3) Mechanical damage caused by individuals, tools, or other outside agents.
 - 4) Changes in sealant appearance caused by accumulation of dirt or other atmospheric contaminants.
- 2. Warranty Period: Two years from date of Substantial Completion.

B. Sealant Installer's Warranty:

- 1. Written warranty, signed by sealant installer, including
 - a. Repair or replace sealant that does not comply with requirements; that does not remain watertight; that fails in adhesion, cohesion, or general durability; or that deteriorates in manner not clearly specified by submitted sealant manufacturer's data as inherent quality of material for application indicated.
 - b. Removal and replacement with new bond breaker materials.
 - c. Labor and materials to perform warranty work.
 - d. Warranty does not include sealant deterioration or failure due to following.
 - 1) Excessive joint movement caused by structural settlement or errors attributable to design or construction, resulting in stresses in sealant exceeding sealant manufacturer's written specifications for sealant elongation or compression.
 - 2) Deterioration or failure of sealant due to failure of substrate prepared according to requirements.
 - 3) Mechanical damage caused by individuals, tools, or other outside agents.
 - 4) Changes in sealant appearance caused by accumulation of dirt or other atmospheric contaminants.
- 2. Warranty Period: Two years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 ELASTOMERIC JOINT SEALANTS

A. General:

DCP II
Exterior Tile Repair Rebid
WJE No. 2016.2948

07 92 00 - 3

Joint Sealants
April 29, 2019
Construction Documents

1. Comply with ASTM C920 and other requirements indicated.
 2. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by sealant manufacturer, based on testing on similar projects, mockups and preconstruction testing for this project, and field experience.
 3. Select products based on mockups, preconstruction testing, and sealant manufacturer's previous testing and experience.
 4. Source Limitations: Obtain each type of joint sealant through one source from single manufacturer.
 5. Colors of Exposed Joint Sealants: Selected and approved in writing by Owner's Representative, from sealant manufacturer's full range.
- B. For use at windows components: Single-component, Non-sag, Non-Staining Silicone Sealants. Provide one of the following:
1. Latasil manufactured by Laticrete International Inc.
 2. 756 SMS Building Sealant manufactured by Dow Corning Corporation.
 3. Spectrem 3 manufactured by Tremco Commercial Sealants & Waterproofing
 4. Approved equal

2.2 AUXILIARY MATERIALS

- A. General: Sealant-backer materials, primers, surface cleaners, masking tape, and other materials recommended by sealant manufacturer, that are non-staining and compatible with substrates; based on mockups, preconstruction testing, and sealant manufacturer's previous testing and experience.
- B. Bond breaker and backer rod: As recommended by sealant manufacturer. Use of open cell backer rod will not be permitted.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions with Installer and sealant manufacturer's representative for compliance with requirements and for other conditions affecting sealant performance.
1. Verify dimensions of sealant joints at the project site by field measurement so that all proper sealant profiles will be accurately maintained.
 2. Notify the Owner's Representative in writing of conditions which may adversely affect sealant installation or performance, including joints with widths less than those allowed by sealant manufacturer for applications indicated. Do not proceed with sealant installation until these conditions have been corrected and reviewed by the Owner's Representative.
 3. Installation of sealant system indicates acceptance of surfaces and conditions.

3.2 COORDINATION

- A. Coordinate Work to ensure that new materials and building interior are kept continuously dry and that continuous, watertight, new sealant installation is provided. Coordinate:
1. With Owner's Representative.
 2. With other trades to avoid or minimize work on, or in immediate vicinity of, installation in progress and completed sealant work.
 3. To avoid or minimize adverse effects on completed sealant work.

3.3 SURFACE PREPARATION

- A. Remove existing sealant and other foreign material from joints.
- B. Repair damaged or deteriorated substrate surfaces according to sealant manufacturer's written instructions and as approved by the Owner's Representative.
- C. Clean joint substrates immediately before installing sealant, to comply with sealant manufacturer's written instructions based on mockups and preconstruction testing.
 - 1. Remove from substrate foreign material that could interfere with adhesion of sealant, including dirt, dust, existing sealant, oil, grease, and surface coatings.
 - 2. Provide dry substrate; prevent wetting of substrate prior to sealant installation.
 - 3. Clean porous substrates, such as concrete, masonry, stone, wood, by brushing, grinding, blast-cleaning, mechanical-abrading, or combination of methods to produce clean, sound substrate capable of developing optimum bond with sealant. Remove laitance and form-release agents from concrete. Remove loose particles remaining after cleaning operations by vacuuming or blowing out joints with oil-free, compressed air.
 - 4. Clean nonporous surfaces, such as metal, with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of sealant.
 - 5. Joints with silicone sealant and preformed sealant seals should generally be masked as subsequent cleanup of spillage and smears may be very difficult.
- D. Install masking tape on adjacent surfaces to prevent permanent staining or damage due to contact with sealant or cleaning methods to remove sealant smears. Remove tape immediately after tooling sealant, without disturbing sealant.

3.4 INSTALLATION OF JOINT SEALANT

- A. General: Comply with sealant manufacturer's written installation instructions for products and applications indicated, based on mockups and preconstruction testing.
- B. Joint Priming: Prime joint substrates where recommended in writing by sealant manufacturer, based on mockups and preconstruction testing. Apply primer to comply with sealant manufacturer's written instructions.
 - 1. Confine primer to areas of sealant bond; do not allow spillage or migration onto adjoining surfaces.
 - 2. Limit priming to areas that will be covered with sealant in same day. Unless recommended otherwise by sealant manufacturer, reprime areas exposed for more than twenty-four (24) hours.
- C. Install sealant backer and position to produce cross-sectional shape and proper depth of installed sealant.
 - 1. Use properly-sized backer. Do not use multiple-backer units or braided-backer units to accommodate wide joints.
 - 2. Install backer with device that will provide consistent depth between substrate surface and outer surface of backer.
 - 3. Do not leave gaps between ends of sealant backers.
 - 4. Do not stretch, twist, puncture, or tear sealant backers.
 - 5. Remove wet backers and replace with dry materials.
- D. Install bond-breaker tape at back of designated joints.

- E. Install sealant immediately after installing backer material; to produce uniform, cross-sectional shape and depth; to directly contact and fully wet joint sides and backer material; and to completely fill recesses in joint configuration.
 - 1. Install sealant flush with surface.
 - 2. Immediately after sealant application and before skinning or curing begins, tool joint with slightly concave surface, compressing sealant into joint to form smooth, uniform sealant bead; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint. Do not use tooling agent.
 - 3. Install sealant slightly below the surface.
 - 4. Immediately after sealant application and before skinning or curing begins, lightly tool joint, compressing sealant into joint to form smooth, uniform sealant bead; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint. Do not use tooling agent.
 - 5. Remove excess sealant from surfaces adjacent to joints.

3.5 FIELD QUALITY CONTROL

- A. Field-Adhesion Testing: Owner's Representative will perform non-destructive and destructive field adhesion tests on sealant in accordance with ASTM C1521.
 - 1. Non-destructive testing:
 - a. Depress center of sealant bead with probing tool to depth of 50 percent of bead width, or depress sealant bead near substrate bond-line until it appears visually that sealant is about to fail in cohesive.
 - b. Record if sealant failed and, if so, if failure was adhesive or cohesive and maximum surface depression as percent of joint width.
 - c. Perform test every 12 inches for first 10 linear feet of joint; if no test failure is observed, test every 24 inches thereafter.
 - 2. Destructive testing:
 - a. Cut 6 inch long tail of sealant loose from substrate.
 - b. Mark tail 1 inch from adhesive bond.
 - c. Grasp tail 1 inch from adhesive bond and pull until tail extends to two times published movement capability of sealant. If sealant has not failed, continue pulling to failure.
 - d. Record elongation at failure and if failure was adhesive or cohesive.
 - e. Observe sealant for complete filling of joint with absence of voids, and for joint configuration in compliance with requirements. Record observations and sealant dimensions
 - f. Perform test every 100 feet for first 1,000 linear feet of joint; if no test failure at two times movement capability occurs, test every 1,000 feet thereafter or approximately once per floor per elevation, whichever is more frequent.
 - 3. Test reports shall include date when sealant was installed, name of person who installed sealant, test date, test location, and whether primer was used.
 - 4. Immediately after testing, Contractor shall replace failed sealant in test areas. Neatly cut out and remove failed sealant, prepare and prime surfaces, and install new sealant. Ensure that original sealant surfaces are clean and that new sealant contacts original sealant.
 - 5. Sealant not evidencing adhesive failure from testing or noncompliance with requirements will be considered satisfactory.
 - 6. Where Owner's Representative determines that sealant has failed adhesively from testing or does not comply with requirements, additional testing will be performed to determine extent of non-conforming sealant. Neatly cut out and remove non-conforming sealant, prepare and prime surfaces, and install new sealant. Perform field adhesion tests on new

sealant. Additional testing and replacement of non-conforming sealant shall be at Contractor's expense.

- B. The Architect/Engineer and Owner reserve the right to perform additional adhesion tests as required. The Contractor will be required to repair all of the quality control test locations at no cost to the Owner.

3.6 CLEANING AND PROTECTION

- A. Clean off excess sealant or sealant smears as Work progresses by methods and with cleaning materials approved in writing by sealant manufacturers and manufacturers of products in which joints occur.
- B. Protect sealant during and after curing period from contact with contaminating substances and from damage, so sealants are without deterioration or damage at time of Substantial Completion. If damage or deterioration occurs, neatly cut out and remove damaged or deteriorated sealant, prepare and prime surfaces, and install new sealant. Replace sealant immediately so new sealant is indistinguishable from original Work.

END OF SECTION

SECTION 09 30 23

GLASS MOSAIC TILING

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Glass tile.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Samples:
 - 1. Each type and composition of tile and for each color and finish required. For glass mosaic tile in color blend patterns, provide samples of each color blend.
 - 2. Assembled samples mounted on a rigid panel, with grouted joints, for each type and composition of tile and for each color and finish required.

1.3 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer.

1.4 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials that match and are from same production runs as products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Tile Units: Contractor to furnish quantity of full-size units equal to specified amount each type, composition, color, pattern, and size indicated on drawing.
 - a. Tile-type designation or description and quantity required for each category of tile for which extra material is required.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications:
 - 1. Installer is a five-star member of the National Tile Contractors Association and/or a Trowel of Excellence member of the Tile Contractors' Association of America.
 - 2. Installer's supervisor for Project holds the International Masonry Institute's Foreman Certification.
 - 3. Installer employs Ceramic Tile Education Foundation Certified Installers and/or installers recognized by the U.S. Department of Labor as Journeyman Tile Layers.
- B. Mockups: Build mockups to verify selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
 - 1. Build mockup of 25 sq. ft. of glass tile installation.
 - 2. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.6 WARRANTY

- A. Reference Section 00700 for Contractor warranty of workmanship. The manufacturer of glass tile, adhesives, mortars, grouts and other materials required in this section shall provide a written two (2) year warranty, which covers materials and labor.

PART 2 PRODUCTS

2.1 PRODUCTS, GENERAL

- A. ANSI Glass Tile Standard: Provide Standard grade glass tile that complies with ANSI A137.2 for types and other characteristics indicated.
- B. ANSI Standards for Tile Installation Materials: Provide materials complying with ANSI A108.02, ANSI standards referenced in other Part 2 articles, ANSI standards referenced by TCNA install methods specified in tile installation schedules, and other requirements specified.

2.2 TILE PRODUCTS

- A. Glass Tile Type: Large format glass tile, cast or fused or low temperature.
 - 1. Villi USA
 - a. Contact information: Christian Zinkl, Villi USA, 1340 Stonefield Court, Alpharetta, GA 30004; Tel: (678) 990-5084; email: *christian@villiusa.com*
 - b. Note: Supplier requires approximately 8 weeks for delivery. Contractor to coordinate procurement upon notice to proceed.
 - 2. Face Size: 8 by 8 inches
 - 3. Sizing Category: Standard.
 - 4. Tile Color and Pattern:
 - a. Ghiaccio, Menta, Lago, Turchese, Blu Marino, Profondo Blu
 - b. Match existing pattern, as shown on Drawings
 - 5. Grout Color: Match existing.

2.3 SETTING MATERIALS

- A. Latex-Portland Cement Thin Bed Mortar: Flexible, waterproof mortar consisting of cement-based mix and latex additive.
 - 1. Compressive strength (ANSI A118.4): >2,500 psi (17.2 MPa)
 - 2. Bond strength (ANSI A118.4): >450 psi (3.1 MPa)
 - 3. Smoke & Flame Contribution (ASTM E84 Modified): 0
 - 4. Products: Laticrete 254 Platinum or approved equal

2.4 GROUT MATERIALS

- A. Epoxy Grout shall be non-toxic, non-flammable, non-hazardous during storage, mixing, application and when cured, GreenGuard compliant, and shall meet the following physical requirements:
 - 1. Compressive Strength (ANSI A118.3): 3,800 psi (26.2 MPa)
 - 2. Shear Bond Strength (ANSI A118.3): 1,100 psi (7.6 MPa)
 - 3. Tensile Strength (ANSI A118.3): 1,100 psi (7.6 MPa)
 - 4. Thermal Shock (ANSI A118.3): >800 psi (5.5 MPa)
 - 5. Water Absorption (ANSI A118.3): <0.05%

- 6. Vertical Joint Sag (ANSI A118.3): Pass
- 7. Products: Laticrete SpectraLOCK Pro Premium Grout, or approved equal.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions where tile will be installed, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
 - 1. Verify that substrates for setting tile are firm; dry; clean; free of coatings that are incompatible with tile-setting materials, including curing compounds and other substances that contain soap, wax, oil, or silicone; and comply with flatness tolerances required by ANSI A108.01 for installations indicated.
 - 2. Verify that concrete substrates for tile floors installed with thinset mortar comply with surface finish requirements in ANSI A108.01 for installations indicated.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 GLASS TILE INSTALLATION

- A. Allow concrete repair to cure minimum of 7 days prior to installation of tile system. Maximum amount of moisture in the concrete/mortar bed substrate should not exceed 5 lbs./1,000 ft² / 24 hours (283 µg/s•m²) per ASTM F1869 or 80% relative humidity as measured with moisture probes per ASTM F2170.
- B. Remove projections, loose/foreign matter, and set protruding fasteners that might interfere with proper installation of barrier/retarder. Clean and prime substrate surfaces to receive adhesives in accordance with instructions of barrier/retarder manufacturer.
- C. Comply with TCNA's "Handbook for Ceramic, Glass, and Stone Tile Installation" for TCNA installation methods specified in tile installation schedules. Comply with parts of the ANSI A108 series "Specifications for Installation of Ceramic Tile" that are referenced in TCNA installation methods, specified in tile installation schedules, and apply to types of setting and grouting materials used.
- D. Extend tile work into recesses and under or behind equipment and fixtures to form complete covering without interruptions unless otherwise indicated. Terminate work neatly at obstructions, edges, and corners without disrupting pattern or joint alignments.
- E. Jointing Pattern: Lay tile in grid pattern unless otherwise indicated. Lay out tile work and center tile fields in both directions in each space or on each wall area. Lay out tile work to minimize the use of pieces that are less than half of a tile. Provide uniform joint widths unless otherwise indicated.
- F. Joint Widths: Unless otherwise indicated, install tile with the following joint widths: 1/8 inch.
- G. Install latex Portland cement mortar in compliance with current revisions of ANSI A108.02 (3.11), A108.1B and ANSI A108.5. Use the appropriate trowel notch size to ensure proper bedding of the tile, brick or stone selected. Work the latex portland cement mortar into good contact with the substrate and comb with notched side of trowel.

- H. Expansion Joints: Provide expansion joints and other sealant-filled joints, including control, contraction, and isolation joints, where indicated. Form joints during installation of setting materials, mortar beds, and tile. Do not saw-cut joints after installing tiles.
1. Where joints occur in concrete substrates, locate joints in tile surfaces directly above them.
 2. Joint width and spacing depends on application - follow TCNA "Handbook for Ceramic, Glass, and Stone Tile Installation" Detail "EJ-171 Expansion Joints" or consult sealant manufacturer for recommendation based on project parameters.
 3. Joint width: $\geq \frac{1}{8}$ inch and ≤ 1 inch
 4. Joint width: depth ~2:1 but joint depth must be $\geq \frac{1}{8}$ inch and $\leq \frac{1}{2}$ inch
 5. Layout (field defined by joints): 1:1 length: width is optimum but must be $\leq 2:1$.
 6. Remove all contaminants and foreign material from joint spaces/surfaces, such as dirt, dust, oil, water, frost, setting/grouting materials, sealers and old sealant/backer. Apply masking tape to face of tile, brick or stone veneer. Use caulking gun, or other applicator, to completely fill joints with sealant. Within 5-10 minutes of filling joint, 'tool' sealant surface to a smooth finish. Remove masking tape immediately after tooling joint. Wipe smears or excess sealant off the face of non-glazed tile, brick, stone or other absorptive surfaces immediately
- I. Grout Sealer: Apply grout sealer to grout joints according to grout-sealer manufacturer's written instructions. As soon as grout sealer has penetrated grout joints, remove excess sealer and sealer from tile faces by wiping with soft cloth.
- J. Install tile backing panels and treat joints according to ANSI A108.11 and manufacturer's written instructions for type of application indicated.

END OF SECTION